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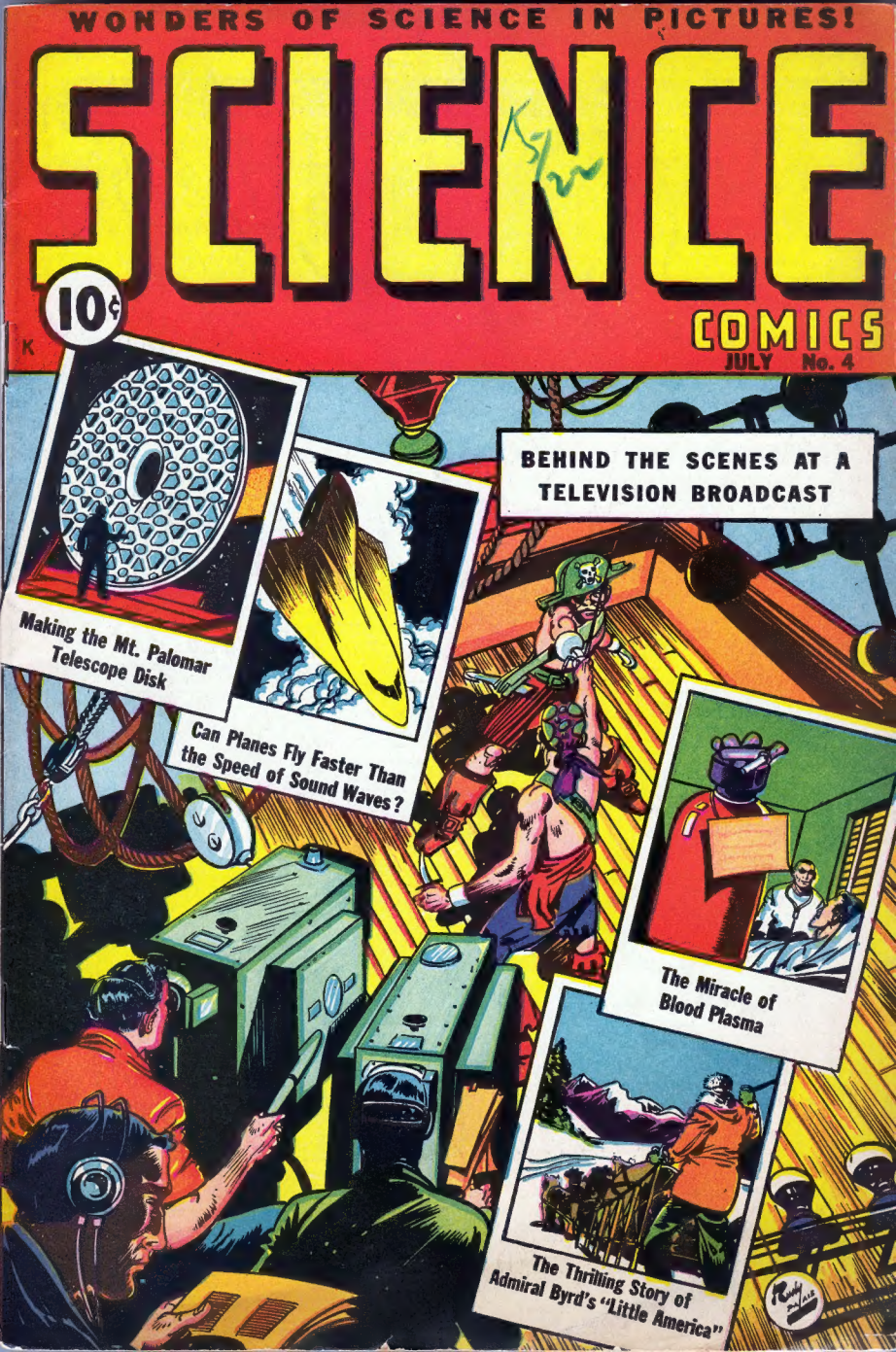
10¢

JULY No. 4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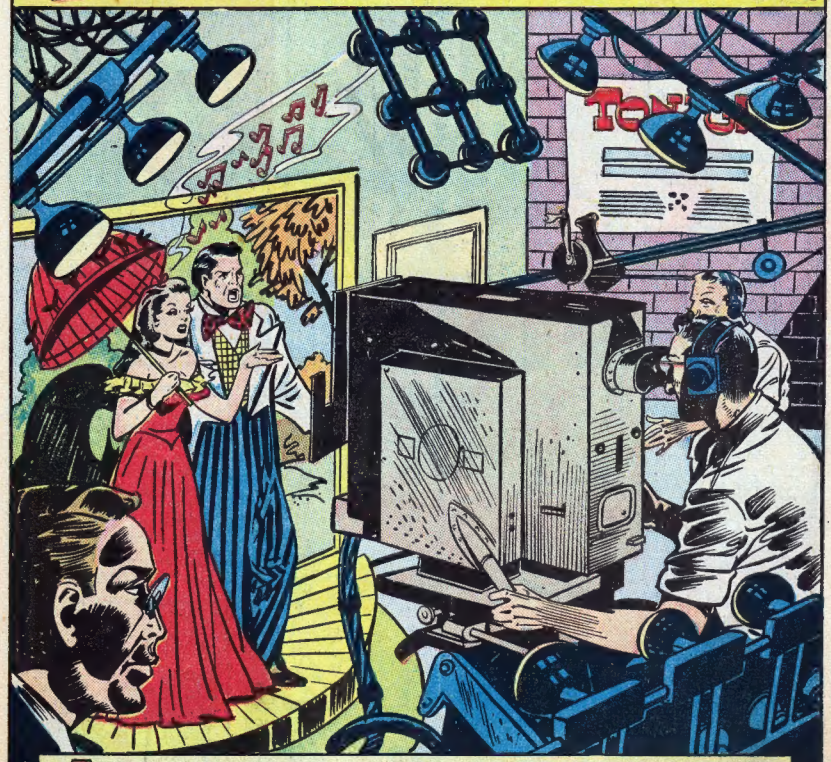
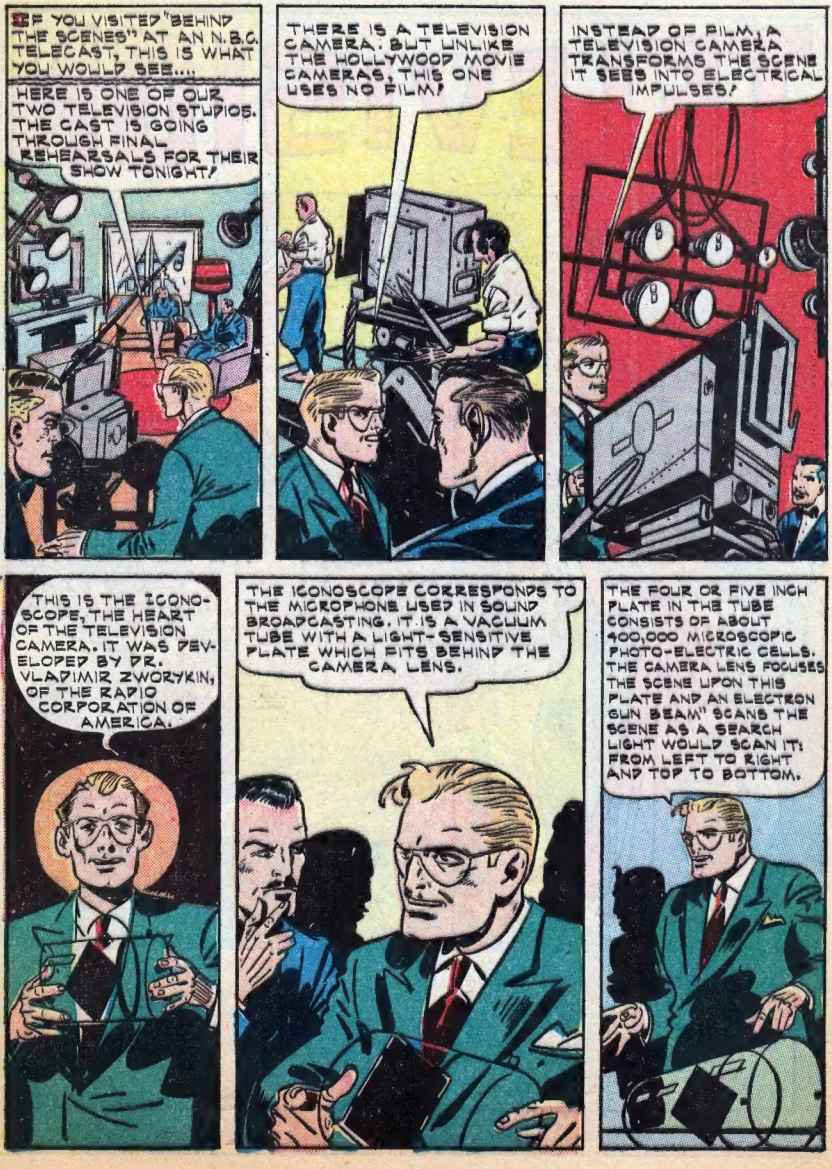
TELEVISION



TELEVISION, THE MOST MODERN MEANS OF ENTERTAINMENT, IS ALSO THE CULMINATION OF THE DREAMS OF MAN EXTENDING BACK THROUGH THE CENTURIES. THE LONGING TO SEE AFAR, TO PENETRATE DISTANCE AND SUBSTANCE, WITH OUR SENSE OF SIGHT, IS A PRIMITIVE INSTINCT. TODAY, WITH TELEVISION BROUGHT TO ITS PRESENT LEVEL OF PERFECTION, **SCIENCE COMICS** TAKES YOU BEHIND THE SCENES AT THE NATIONAL BROADCASTING COMPANY'S TELEVISION STUDIOS TO SHOW YOU HOW A "TELECAST" IS PRODUCED, AND TRANSMITTED TO THE TELEVISION RECEIVERS IN THE HOMES OF THE NATION.


IF YOU VISITED "BEHIND THE SCENES" AT AN N.B.C. TELECAST, THIS IS WHAT YOU WOULD SEE....
HERE IS ONE OF OUR TWO TELEVISION STUDIOS. THE CAST IS GOING THROUGH FINAL REHEARSALS FOR THEIR SHOW TONIGHT!
THERE IS A TELEVISION CAMERA. BUT UNLIKE THE HOLLYWOOD MOVIE CAMERAS, THIS ONE USES NO FILM!
INSTEAD OF FILM, A TELEVISION CAMERA TRANSFORMS THE SCENE IT SEES INTO ELECTRICAL IMPULSES!
THIS IS THE ICONOSCOPE, THE HEART OF THE TELEVISION CAMERA. IT WAS DEVELOPED BY DR. VLADIMIR ZWORYKIN, OF THE RADIO CORPORATION OF AMERICA.
THE ICONOSCOPE CORRESPONDS TO THE MICROPHONE USED IN SOUND BROADCASTING. IT IS A VACUUM TUBE WITH A LIGHT-SENSITIVE PLATE WHICH FITS BEHIND THE CAMERA LENS.
THE FOUR OR FIVE INCH PLATE IN THE TUBE CONSISTS OF ABOUT 400,000 MICROSCOPIC PHOTO-ELECTRIC CELLS. THE CAMERA LENS FOCUSES THE SCENE UPON THIS PLATE AND AN ELECTRON GUN BEAM" SCANS THE SCENE AS A SEARCH LIGHT WOULD SCAN IT: FROM LEFT TO RIGHT AND TOP TO BOTTOM.

THE TUBE SCANS THE PICTURE MUCH AS IF IT WERE BREAKING THE IMAGE UP INTO A SERIES OF SQUARES, BUT IT HAPPENS SO FAST. THE ENTIRE SCENE IS SCANNED THIRTY TIMES EACH SECOND—THAT THE IMAGE "GOES OUT" AS ONE CONTINOUS ACTION.

IN A MOTION PICTURE CAMERA, THE FILM IS EXPOSED AT THE RATE OF ONLY 24 FRAMES PER SECOND. SINCE THE TELEVISION CAMERA PICKS UP THE SCENE AT THE RATE OF 30 SCENES PER SECOND, TELEVISION CAMERAS CAN PICK UP FASTER ACTION THAN A MOTION PICTURE CAMERA.

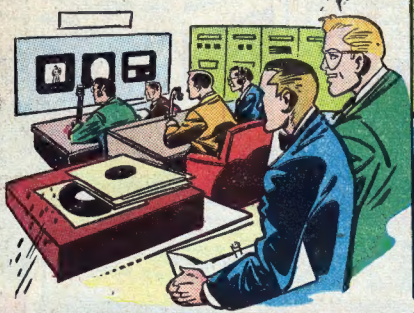
AFTER THESE SCENES ARE CONVERTED INTO ELECTRICAL IMPULSES BY THE ICONOSCOPE IN THE CAMERA, THE IMPULSES ARE SENT THROUGH THE CO-AXIAL CABLE ATTACHED TO THE CAMERA.

THIS CO-AXIAL CABLE USUALLY CONSISTS OF SIX OR EIGHT COPPER TUBES THROUGH WHICH THE IMPULSES ARE CARRIED. THESE TUBES ARE ENCLOSED IN LEAD, OVER WHICH IS AN ORDINARY FINAL WRAPPING OF RUBBERIZED MATERIAL WHICH GIVES THE CABLE AN OUTWARD APPEARANCE MUCH LIKE AN OVERGROWN GARDEN HOSE.

THE OTHER END OF THE CABLE IS CONNECTED TO A BATTERY OF AMPLIFYING TUBES. THERE, THE WEAK TELEVISION SIGNALS ARE SUBSEQUENTLY AMPLIFIED AND BROADCAST OVER A RADIO CARRIER WAVE.

WE'LL SEE LATER HOW THIS AMPLIFICATION IS DONE. NOW, LET'S HAVE A LOOK INTO THE CONTROL ROOM, WHERE THE ENGINEERS AND DIRECTOR ARE WATCHING THE REHEARSAL IN THE STUDIO.

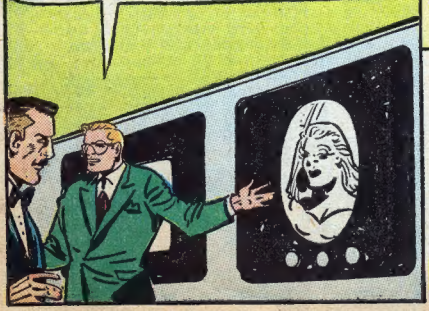
THE DIRECTOR AND HIS "RIGHT HAND MAN" ARE SEATED AT THE TABLE BEHIND THE ENGINEERS!



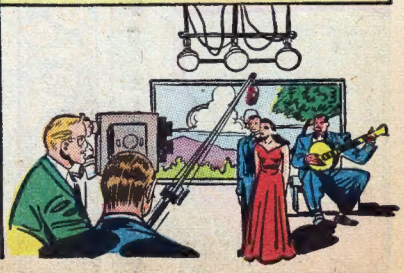
EACH CAMERA OUTSIDE IN THE STUDIO HAS THE SCENE IT IS NOW PHOTOGRAPHING REPRODUCED ON THE CATHODE RAY TUBES IN FRONT OF THE ENGINEERS!

NOTICE THAT THE SCENE IN THE ROUND SCREEN HAS CHANGED TO A CLOSE-UP SHOT. THIS WAS AT THE DIRECTOR'S INSTRUCTION TO THE ENGINEER AT HIS RIGHT WHO, BY THROWING A SWITCH, CHANGED TO THE NUMBER ONE CAMERA.

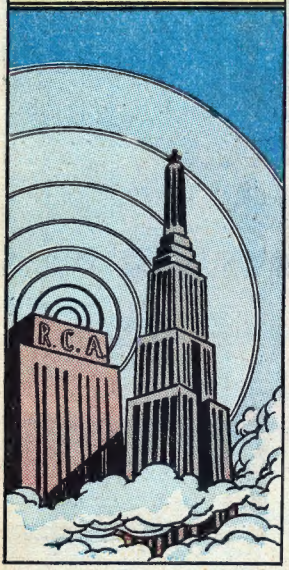
BY CUTTING BACK AND FORTH FROM ONE CAMERA TO ANOTHER, A CHANGE OF FACE IS EFFECTED. WHICHEVER IMAGE IS CARRIED ON THE ROUND SCREEN IS THE SAME ONE WHICH IS BEING SENT OUT OVER THE AIR.



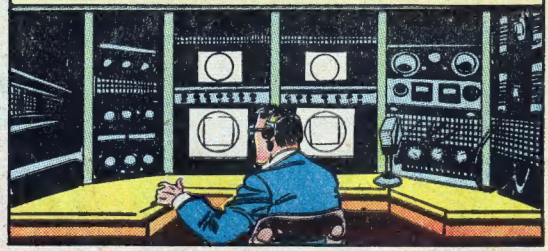
WHILE THE TELEVISION CAMERAS ARE PICKING UP THE PERFORMANCE AND SENDING OUT THE "PICTURES" IN THE FORM OF RADIO WAVES, SOUND IS ALSO PICKED UP BY THE MICROPHONE AND BROADCAST IN THE NORMAL MANNER OF SOUND BROADCASTING. NOTE THAT THE "MIKE" IS CAREFULLY PLACED ABOVE THE LEVEL OF THE CAMERA EYES.



FROM THE RCA BUILDING WHICH HOUSES THE NBC STUDIOS, THE TELECAST IS BEAMED TO THE TOP OF THE EMPIRE STATE BUILDING WHERE THE TELEVISION TRANSMITTER IS LOCATED.

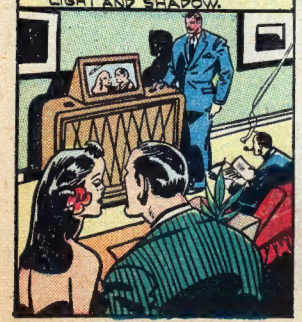


HERE IN THE TRANSMISSION ROOM, THE SIGNALS FROM THE NBC STUDIOS ARE PICKED UP, AMPLIFIED AND BROADCAST BY THE BATTERY OF TUBES AND OTHER EQUIPMENT VISIBLE AROUND THE WALLS OF THE ROOM.



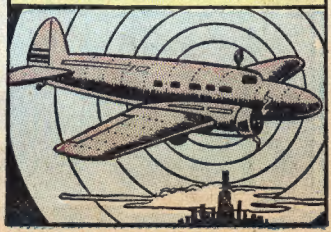
SINCE TELEVISION WAVES DO NOT FOLLOW THE CURVE OF THE EARTH'S SURFACE, BUT TRAVEL IN A STRAIGHT LINES, THE BROADCAST FROM THE EMPIRE STATE CAN BE RECEIVED ONLY ON SETS LOCATED WITHIN FIFTY MILES FROM THE EMPIRE STATE BUILDING.

THE TELEVISED PROGRAM IS PICKED UP ON A RECEIVER WHICH USES THE CATHODE RAY TUBE AS THE FLUORESCENT SCREEN, CONVERTING THE ELECTRICAL IMPULSES INTO VISIBLE PATTERNS OF LIGHT AND SHADOW.



JUST AS THE ICONOSCOPE IS THE HEART OF THE BROADCASTING PICK-UP, SO THE CATHODE TUBE IS THE HEART OF THE RECEIVING SETS. THE IMAGE APPEARS ON THE LARGE FLUORESCENT "SCREEN" OF THE TUBE. THIS VERSATILE TUBE IS ALSO ESSENTIAL TO RADAR SETS (SEE **SCIENCE COMICS NO. 2.**)

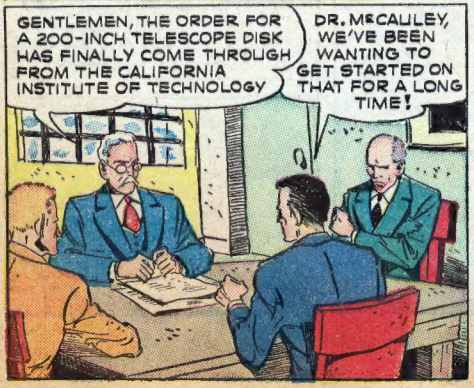
ONE METHOD OF MAKING TELEVISION A COAST-TO-COAST AFFAIR IS TO LAY UNDERGROUND CO-AXIAL CABLES FROM CITY TO CITY, WHERE THE TELECAST CAN BE PICKED UP, AMPLIFIED AND RE-BROADCAST. STILL A SECOND POSSIBILITY IS TO USE LARGE PLANES WITH EQUIPMENT INSTALLED IN THEM. THEY WILL PICK UP TELECASTS FROM LOCAL STATIONS AND RE-TELEVISE THEM FROM ALOFT. BY THIS METHOD ONLY ABOUT NINE PLANES COULD "COVER" THE NATION!



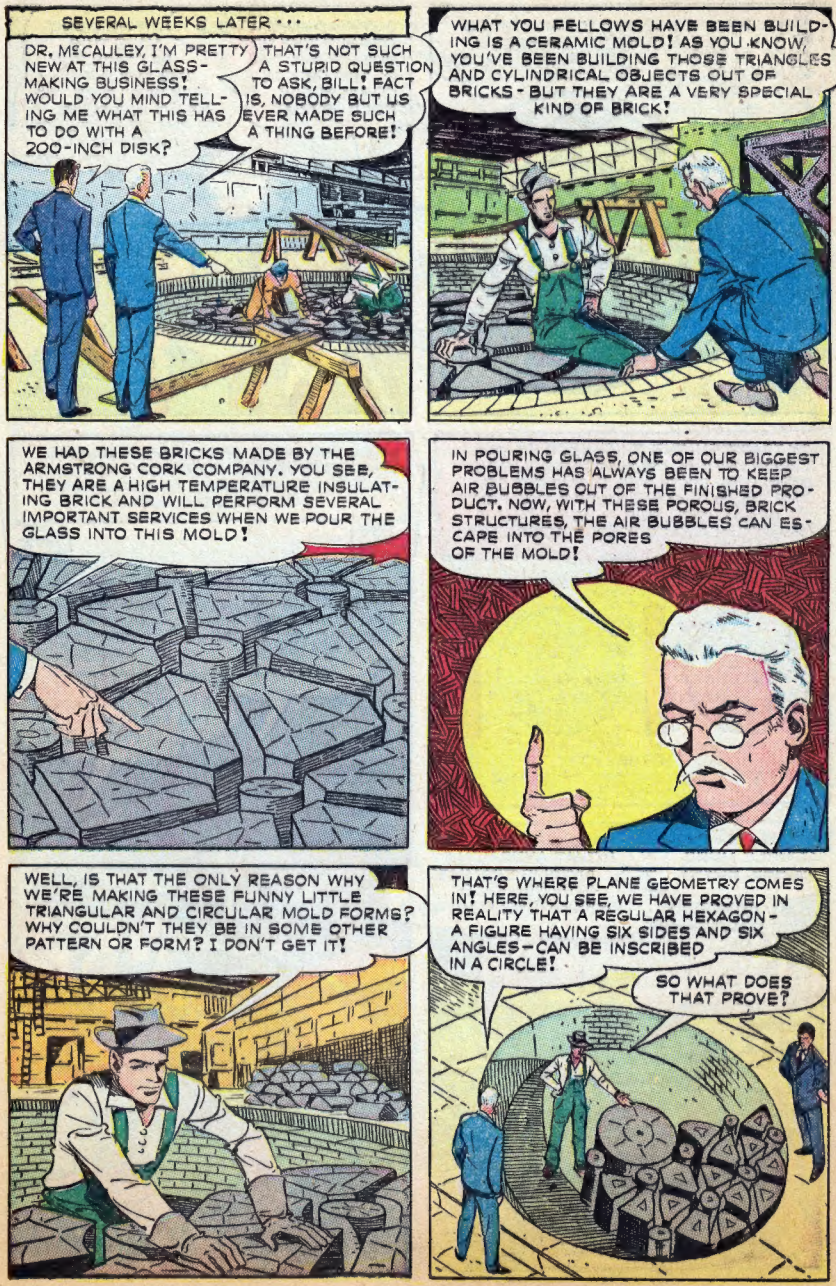
THE WORLD'S LARGEST EYE

HIGH ATOP MT. PALOMAR, CALIFORNIA, IS THE WORLD'S LARGEST TELESCOPE. INSIDE THIS ASTRONOMICAL GIANT IS A HUGE GLASS DISK—200 INCHES IN DIAMETER—WHICH IS THE REFLECTOR OR EYE OF THE TELESCOPE. MANUFACTURED BY THE CORNING GLASS WORKS, CORNING, NEW YORK, THIS DISK IS NOT ONLY THE LARGEST SINGLE PIECE OF GLASS EVER MADE, BUT IT IS PERFECT IN EVERY DETAIL. HOW THE CORNING SCIENTISTS PLANNED AND EXECUTED THIS WORK IS TOLD IN FOLLOWING PAGES • • •

ONE DAY IN 1931, AT THE CORNING GLASS WORKS


GENTLEMEN, THE ORDER FOR A 200-INCH TELESCOPE DISK HAS FINALLY COME THROUGH FROM THE CALIFORNIA INSTITUTE OF TECHNOLOGY
DR. McCAULEY, WE'VE BEEN WANTING TO GET STARTED ON THAT FOR A LONG TIME!

WE CERTAINLY SHOULD BE ABLE TO HANDLE THIS. AFTER ALL, WE'VE ALREADY MOLDED A THIRTY, A SIXTY AND A ONE HUNDRED-TWENTY-INCH DISK!
RIGHT! AND THE OBSERVATORIES THAT BOUGHT THEM SAY THEY ARE PERFECT!

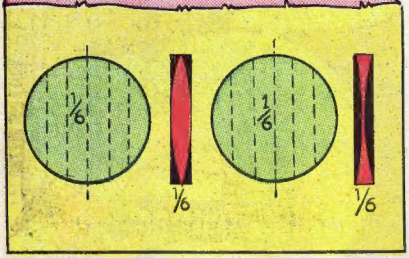

SEVERAL WEEKS LATER ...
DR. McCAULEY, I'M PRETTY NEW AT THIS GLASS-MAKING BUSINESS! WOULD YOU MIND TELLING ME WHAT THIS HAS TO DO WITH A 200-INCH DISK?
THAT'S NOT SUCH A STUPID QUESTION TO ASK, BILL! FACT IS, NOBODY BUT US EVER MADE SUCH A THING BEFORE!
WHAT YOU FELLOWS HAVE BEEN BUILDING IS A CERAMIC MOLD! AS YOU KNOW, YOU'VE BEEN BUILDING THOSE TRIANGLES AND CYLINDRICAL OBJECTS OUT OF BRICKS - BUT THEY ARE A VERY SPECIAL KIND OF BRICK!
WE HAD THESE BRICKS MADE BY THE ARMSTRONG CORK COMPANY. YOU SEE, THEY ARE A HIGH TEMPERATURE INSULATING BRICK AND WILL PERFORM SEVERAL IMPORTANT SERVICES WHEN WE POUR THE GLASS INTO THIS MOLD!
IN POURING GLASS, ONE OF OUR BIGGEST PROBLEMS HAS ALWAYS BEEN TO KEEP AIR BUBBLES OUT OF THE FINISHED PRODUCT. NOW, WITH THESE POROUS, BRICK STRUCTURES, THE AIR BUBBLES CAN ESCAPE INTO THE PORES OF THE MOLD!
WELL, IS THAT THE ONLY REASON WHY WE'RE MAKING THESE FUNNY LITTLE TRIANGULAR AND CIRCULAR MOLD FORMS? WHY COULDN'T THEY BE IN SOME OTHER PATTERN OR FORM? I DON'T GET IT!
THAT'S WHERE PLANE GEOMETRY COMES IN! HERE, YOU SEE, WE HAVE PROVED IN REALITY THAT A REGULAR HEXAGON - A FIGURE HAVING SIX SIDES AND SIX ANGLES - CAN BE INSCRIBED IN A CIRCLE!
SO WHAT DOES THAT PROVE?

IF YOU WILL NOTICE, THE STRAIGHT RIBS OF THE MOLD INTERSECT THE ROUND ONES, FORMING THE POINTS OF SUPPORT AT RIGHT ANGLES. THIS MEANS THAT WE AVOID ALL ACUTE ANGLES, WHERE THE POINTS OF STRESS ARE HIGHEST!

BUT WHY HAVE A MOLD AT ALL? WHY NOT JUST POUR THE GLASS DISK IN A COMPLETELY SOLID FORM?

IF WE DIDN'T HAVE THIS PATTERN FOR THE MOLD, THE DISK WOULD BE TOO HEAVY IN A SOLID FORM! UP UNTIL NOW, ALL MIRRORS OR ANY OTHER OPTICAL INSTRUMENTS HAVE ALWAYS BEEN SOLID!

BY TRADITION, THE THICKNESS OF PRECISION OPTICAL OBJECTS HAS ALWAYS BEEN ONE-SIXTH THE DIAMETER OF THE OBJECT. CORNING WAS THE FIRST TO BREAK WITH THIS GLASS-MAKING TRADITION AND DO IT SUCCESSFULLY!



ONCE THE MOLD WAS COMPLETED, THE ENGINEERS BEGAN TO BRING THE OTHER NECESSARY MACHINES AND EQUIPMENT INTO THE MOLD ROOM . . .

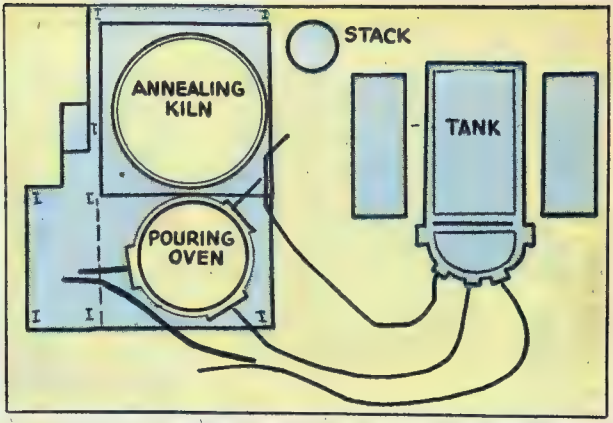
THESE POURING LADLES ARE MIGHTY BIG! HOW MUCH DO YOU SUPPOSE THEY WEIGH, ANYHOW?

SEVEN HUNDRED AND FIFTY POUNDS APIECE! AND ALL THREE WILL BE IN CONSTANT USE DURING THE POURING PROCESS!

SWING HER OVER A COUPLE MORE INCHES, BOYS!

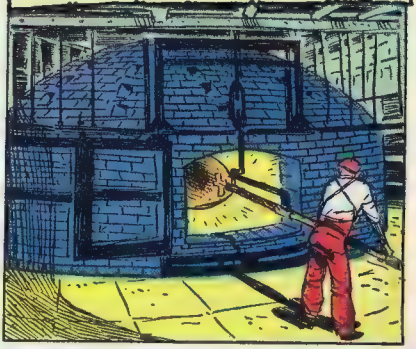
AND GO EASY! THAT ANNEALING OVEN IS CRAMMED WITH DELICATE TEMPERATURE CONTROLS

THE MELTING TANK, ANNEALING OVEN AND MOLD WERE ALL PLACED IN SUCH A MANNER THAT ALL THREE UNITS WERE WITHIN A SHORT DISTANCE OF EACH OTHER, AS IN THE DIAGRAM AT RIGHT

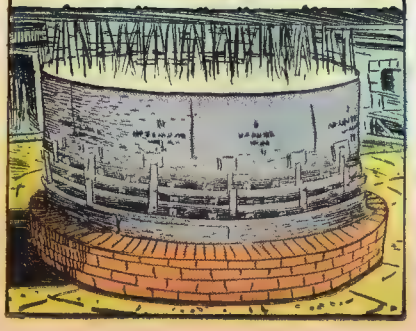


NEXT, SPECIAL GLASS, PREVIOUSLY MANUFACTURED, WAS DUMPED INTO THE MELTING OVEN AND HEATED TO A LIQUID STATE!

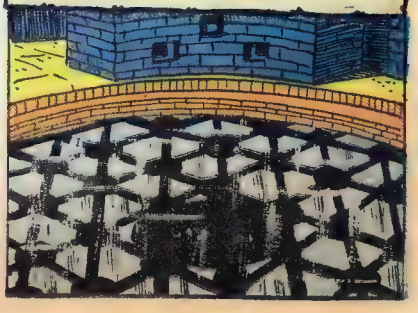
THEN THE MOLTEN GLASS WAS TRANSFERRED—BY MEANS OF THE GIANT LADLES—AND POURED INTO THE MOLD!

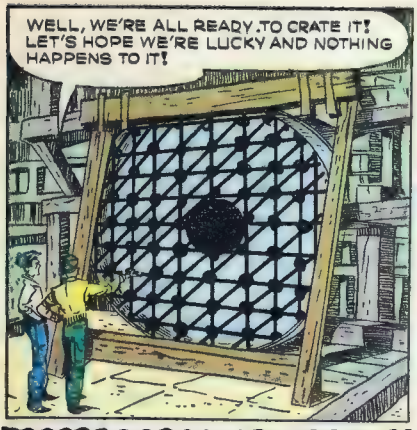


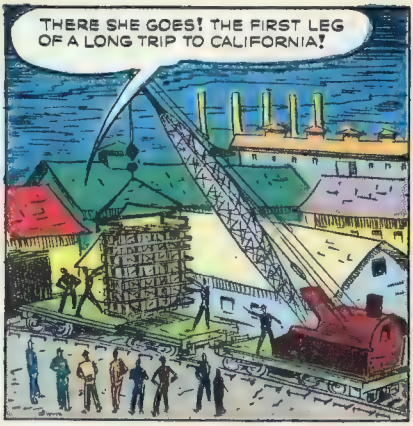
AFTER POURING, THE ANNEALING KILN OR OVEN WAS PLACED IN POSITION OVER THE MOLD AND THE TEMPERATURE CAREFULLY CONTROLLED BY A BATTERY OF PRECISION THERMOMETERS AND THERMOSTATS



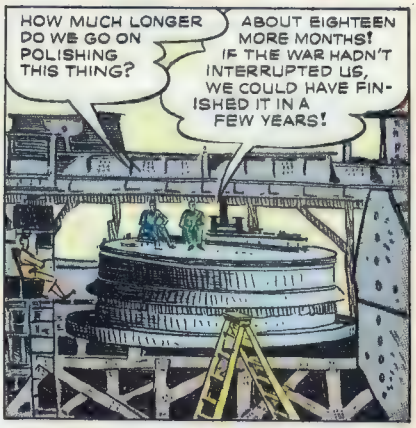
A CONSTANT TEMPERATURE OF 500° CENTIGRADE WAS MAINTAINED FOR 50 DAYS TO "CONDITION" THE GLASS DISK. THEN THE TEMPERATURE WAS REDUCED ONE DEGREE EACH THIRTY HOURS UNTIL THE ENTIRE DISK WAS COOLED!

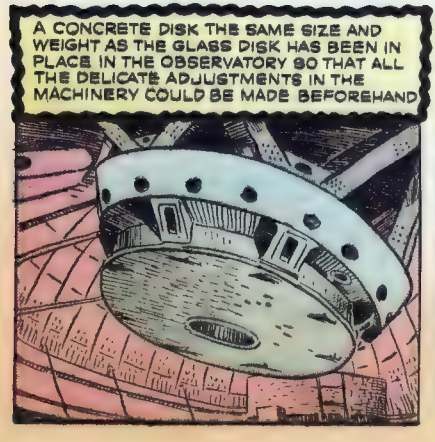


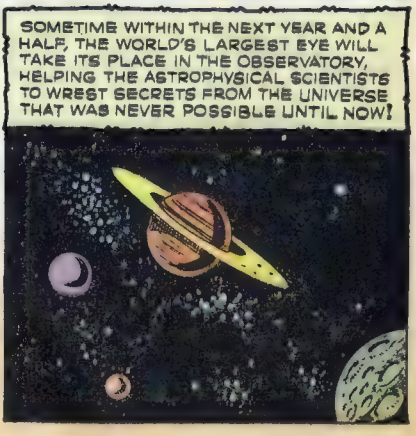

WELL, WE'RE ALL READY TO CRATE IT! LET'S HOPE WE'RE LUCKY AND NOTHING HAPPENS TO IT!


THERE SHE GOES! THE FIRST LEG OF A LONG TRIP TO CALIFORNIA!

BRACED CAREFULLY ON A SPECIAL, LOW-SLUNG FLAT CAR, THE LENS ARRIVED SAFELY BY RAIL AT THE LABORATORY IN CALIFORNIA.

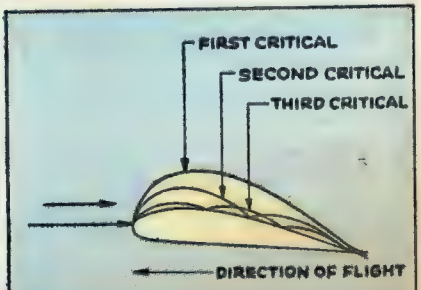

HOW MUCH LONGER DO WE GO ON POLISHING THIS THING?
ABOUT EIGHTEEN MORE MONTHS! IF THE WAR HADN'T INTERRUPTED US, WE COULD HAVE FINISHED IT IN A FEW YEARS!


A CONCRETE DISK THE SAME SIZE AND WEIGHT AS THE GLASS DISK HAS BEEN IN PLACE IN THE OBSERVATORY SO THAT ALL THE DELICATE ADJUSTMENTS IN THE MACHINERY COULD BE MADE BEFOREHAND

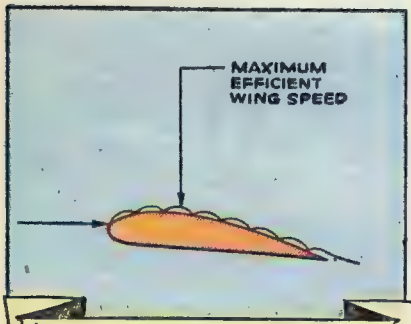

SOMETIME WITHIN THE NEXT YEAR AND A HALF, THE WORLD'S LARGEST EYE WILL TAKE ITS PLACE IN THE OBSERVATORY, HELPING THE ASTROPHYSICAL SCIENTISTS TO WREST SECRETS FROM THE UNIVERSE THAT WAS NEVER POSSIBLE UNTIL NOW!

SUPERSONIC FLIGHT

EVER SINCE THE WRIGHT BROTHERS' FIRST FLIGHT AT KITTY-HAWK, SCIENTISTS HAVE BEEN TRYING TO INCREASE THE LOAD-CARRYING CAPACITIES OF PLANES WHILE INCREASING THE SPEED OF THE PLANE'S FLIGHT. BUT IS THERE A LIMIT TO THE SPEED A PLANE CAN ATTAIN? CAN A PLANE, IN OTHER WORDS, HOPE TO FLY FASTER THAN THE SPEED OF SOUND (743 MILES PER HOUR)? IN OTHER WORDS, IS **SUPERSONIC** SPEED ATTAINABLE OR WILL FUTURE PLANES FLYING AT THIS SPEED FLUTTER AND GO TO PIECES AS THEY DO TODAY? HERE ARE SOME INTERESTING POSSIBILITIES, BASED ON MATERIAL FURNISHED TO **SCIENCE** COMICS BY THE EDITORS OF THE LEADING AVIATION MAGAZINE, **FLYING AGE.**

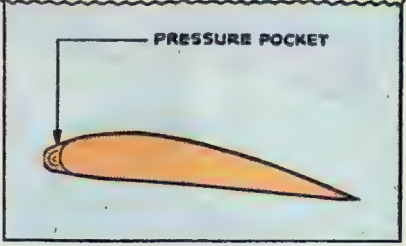


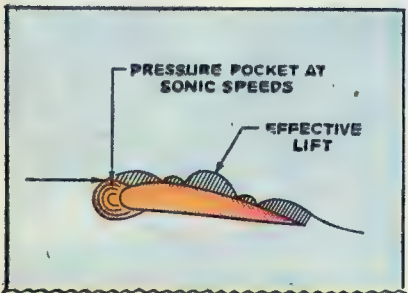
THE PRIMARY PROBLEM IN FLYING AT SUPERSONIC SPEED LIES IN THE BEHAVIOR OF THE AIRPLANE WING. AS SPEED OF FLIGHT INCREASES, THE AIRFLOW PATTERN CHANGES



AS A PLANE NEARS 743 MILES PER HOUR, THE AIR AROUND THE WINGS TENDS TO FLOW MORE SNUGLY OVER THE WING SURFACE, THUS SETTING A LIMIT TO THE LIFT OF THE WINGS

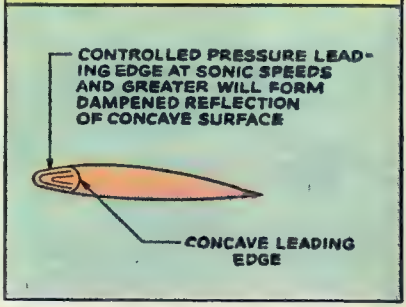
THE AIR ALSO "BUILDS UP" IN FRONT OF THE LEADING EDGE OF THE WING, ACTING AS IF IT WERE PART OF THE WING AND THUS REDUCES THE AIRFOIL (LIFTING POWER) OF WING.

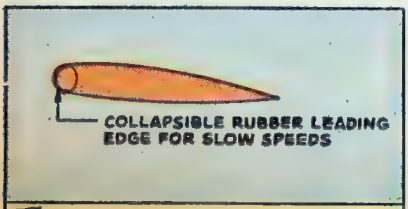




AN AIR POCKET DOES NO HARM TO A PLANE WHEN FLYING AT NORMAL SPEED, BUT AT NEAR-SONIC SPEEDS, A POCKET BECOMES A "LUMP" ON THE WING AND FLUTTER AND BRAKING EFFECT CAUSE THE PLANE TO CRACK TO PIECES

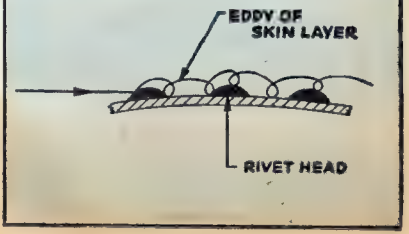
SINCE IT IS IMPOSSIBLE TO PREVENT THE PRESSURE POCKET FROM BUILDING UP ON WING, IS TO CONTROL THE POCKET WITH A CONCAVE LEADING EDGE ON THE WING. THIS TYPE OF WING WILL BUILD UP AN AIR POCKET THAT HAS GOOD AIRFOIL OR LIFTING POWER.


CONTROLLED PRESSURE LEADING EDGE AT SONIC SPEEDS AND GREATER WILL FORM DAMPENED REFLECTION OF CONCAVE SURFACE
CONCAVE LEADING EDGE

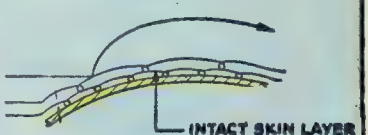


TO ACHIEVE THIS CONCAVE LEADING EDGE, RUBBER COULD BE USED. IT WOULD BE FORMED IN THE CONVENTIONAL WING SHAPE BUT AS THE SPEED OF THE PLANE INCREASED, THIS RUBBER LEADING EDGE COULD BE COLLAPSED INTO THE CONCAVE SHAPE DESIRED.

STILL ANOTHER DRAWBACK IN TRYING TO ATTAIN SUPERSONIC SPEED IN PLANES IS THAT OF SURFACE FRICTION. IN DIAGRAM, NOTE THE ROLLING EDDIES PRODUCED BY RIVET HEADS.

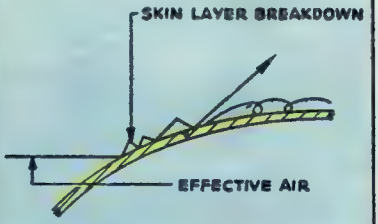


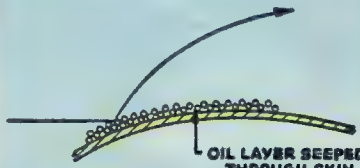
IN ORDINARY FLIGHT, AS A PLANE'S SPEED INCREASES, SKIN AIR LAYERS ARE BUILT UP AS THE AIR FLOWS WITH A SLIGHT ROLLING EFFECT OVER THE SMOOTH WING SURFACES



AT NORMAL FLYING SPEEDS, PARTICLES OF AIR STRIKING THESE SKIN AIR LAYERS BOUND OFF, CAUSING VERY LITTLE BRAKING OR "SLOWING DOWN" EFFECT ON THE PLANE.

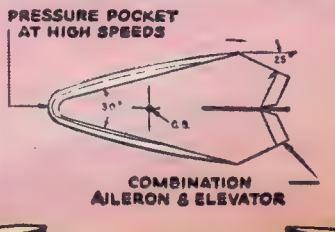
BUT AS A PLANE NEARS SUPERSONIC SPEED, THE SKIN AIR LAYERS TEND TO BREAK DOWN, AND AIR PARTICLES STRIKING THE WINGS DO NOT BOUND OFF, THUS SLOWING DOWN PLANE.





ONE METHOD OF COMPENSATING FOR THE BROKEN-DOWN SKIN LAYERS WHILE PLANE IS FLYING AT (OR NEAR) SUPERSONIC SPEED IS TO SPRAY AN OIL FILM OVER THE WING SURFACES

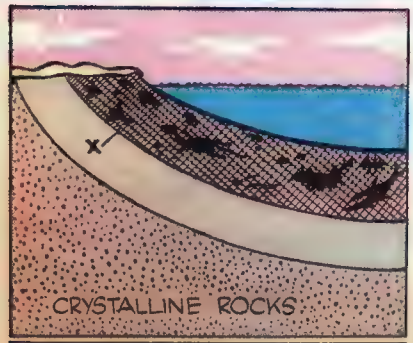
BUT THE BASIC REQUISITE FOR SUPERSONIC PLANES IS A TIGHTER "ASPECT RATIO." THIS SIMPLY MEANS THAT THE WING MUST PRESENT A SHORTER "HEAD-ON" SILHOUETTE. AS THE DIAGRAM SHOWS, THE WINGS ARE PULLED IN TO KEEP RESISTANCE AT A MINIMUM.



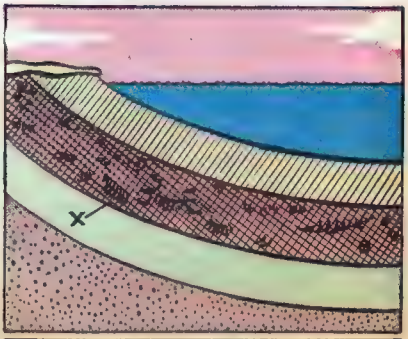
MOST LOGICAL SOLUTION TO SUPERSONIC FLIGHT IS TO BUILD SLEEK, FRICTION-FREE, DART-LIKE PLANES IN WHICH THE PRESSURE POCKETS WOULD BE SPREAD OUT THINLY. SUCH A PLANE AS THIS MAY WELL BE THE SUPERSONIC PLANE OF THE FUTURE.

OIL CAPTURED ENERGY

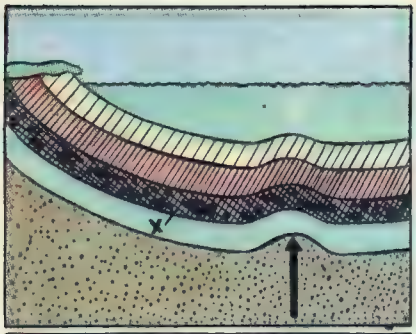
ALL LIVING THINGS DERIVE THEIR ENERGY FROM THE SUN'S RAYS (SEE "HOW ENERGY MAKES THINGS GO" SCIENCE COMICS NO. 2) THE SAME HELD TRUE OF THE PREHISTORIC PLANTS AND ANIMALS WHICH LIVED MILLIONS OF YEARS AGO. AS TIME WENT BY, THESE LAND PLANTS AND ANIMALS DIED, WERE BURIED IN THE EARTH BY NATURE, BEGAN TO DECAY AND WERE BROUGHT TOGETHER. BY SEA OOZE TO JOIN THE DECAYING BITS OF MARINE LIFE FROM THE SEA. NOW WE SHALL SEE HOW THIS COMBINATION LUBRICATES OUR MACHINES AND PERFORMS OTHER USES FOR US IN TODAY'S WORLD.



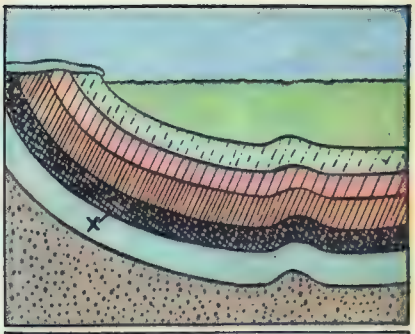
SEA OOZE TRAPPED A MASS OF PLANT AND ANIMAL MATTER FROM LAND AND OCEAN IN A FIRM LAYER (X)



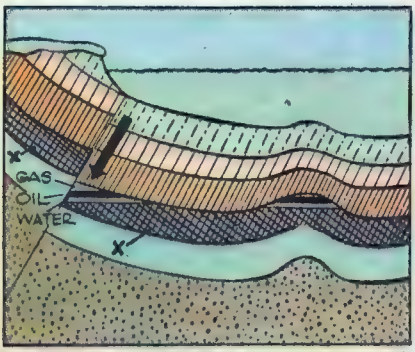
THE NEW SILT ON TOP BURIED THE STRATUM AND CREATED PRESSURE AND HEAT ON THE BITS OF MATTER.



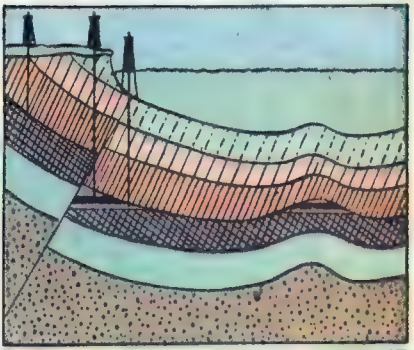
BACTERIA OR OTHER AGENTS TURNED THESE INTO DROPS OF OIL. A TREMOR FOLDED THE EARTH'S CRUST.



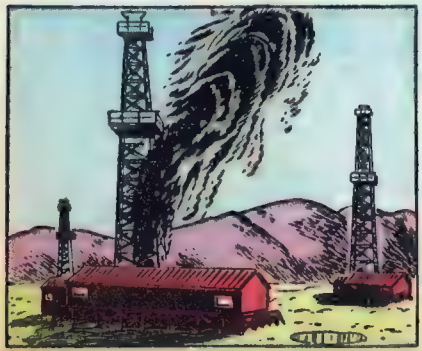
WATER SEEPED THROUGH THE POROUS ROCK. THE OIL AND GAS, BEING LIGHTER, ROSE IN THE STRATUM.



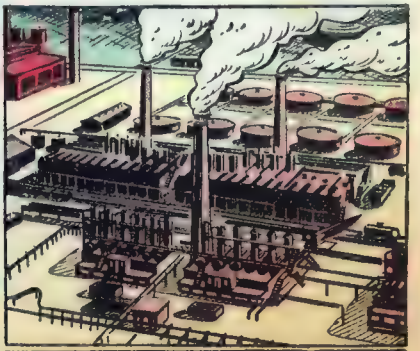
THE ROCK SHIFTED (ARROW) AND AN IMPERVIOUS LAYER BECAME A BARRIER TO DAM THE GAS AND OIL.



TODAY MAN DIGS UP THIS "BURIED SUNLIGHT". A WELL MAY HIT EITHER DRY AREA, GAS, OIL OR WATER.



WHEN A WELL IS STRUCK, THE OIL IS EITHER PUMPED TO THE SURFACE BY MACHINERY OR THE NATURAL GAS IN A NEARBY POCKET BLOWS IT UPWARD.

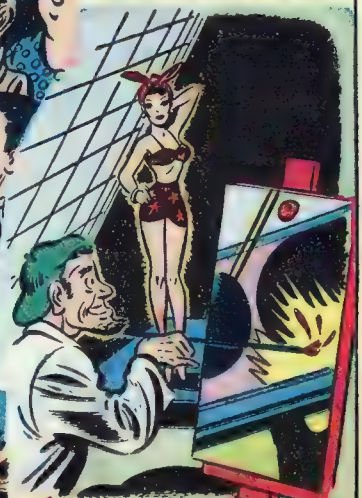


THE OIL OR CRUDE PETROLEUM IS THEN TRANSPORTED TO A REFINERY WHERE IT IS MADE INTO TODAY'S LUBRICANTS, FUEL OIL OR GASOLINE.

SCIENCE ODDITIES

THE LONGEST RIVER IN THE WORLD IS NOT THE MISSISSIPPI, MISSOURI, NILE OR AMAZON BUT THE **GULF STREAM!** ALTHOUGH ITS "BANKS" ARE WATER INSTEAD OF LAND THE GULF STREAM IS A RIVER AND STRETCHES ABOUT 5000 MILES IN LENGTH... ABOUT 1000 MILES FARTHER THAN ANY OTHER RIVER IN THE WORLD

ALTHOUGH DISPLAYS OF STRENGTH ARE USUALLY MADE FEATURING THE MUSCLES OF THE ARMS, LEGS AND TORSO OF THE HUMAN BODY, STILL *ONE-FORTH* OF THE BODY'S 500 MUSCLES ARE IN THE ***FACE*** AND ***NECK!***



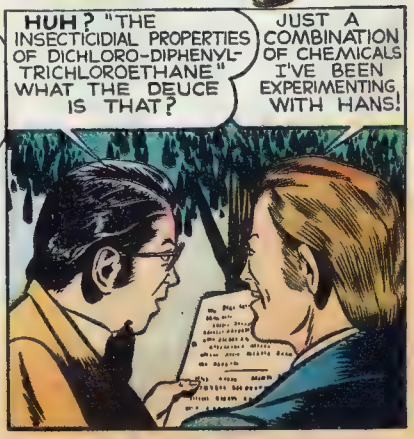
A STRANGE NATURAL PHENOMENON THAT BAFFLES SCIENTISTS IS THE AWESOME FLASHES OF SHEET LIGHTNING, FIRE BALLS AND LUMINOUS SPARKS THAT USUALLY OCCUR DURING GREAT EARTHQUAKES! NO REASON FOR THEM IS KNOWN!

ARTISTS, FOR CENTURIES, HAVE INSISTED ON DOING PAINTINGS BY THE LIGHT OF THE NORTH SKY, BUT SCIENCE HAS NOW PROVED THAT NORTH LIGHT NOT ONLY VARIES MORE FROM HOUR TO HOUR BUT ACTUALLY DISTORTS CERTAIN COLORS SO THAT BLUES ARE EXAGGERATED AND REDS AND YELLOWS ARE MINIMIZED OR DECREASED IN VALUE!

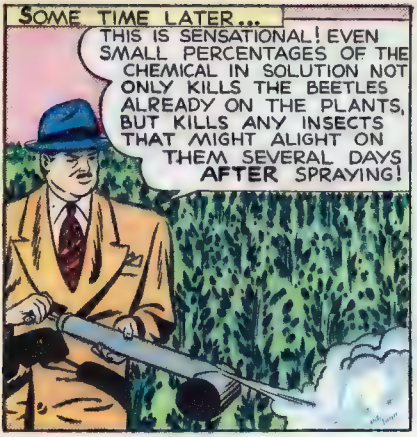
D.D.T. MIRACLE BUG-KILLER

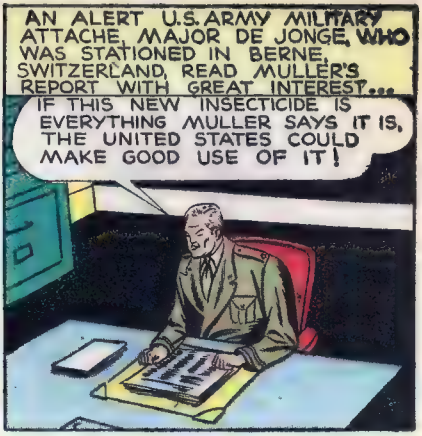
DURING THE SUMMER OF 1944, WHEN THE UNITED STATES MILITARY MEN ADMITTED THEY HAD BEEN USING A SECRET INSECTICIDE CALLED "DDT", THE NEWSPAPERS BEGAN RUNNING HYSTERICAL ACCOUNTS OF MIRACLES AS WELL AS DISASTERS WROUGHT BY THIS WONDER CHEMICAL. THIS IS THE TRUE STORY OF THE DISCOVERY AND DEVELOPMENT OF DDT.
GAM

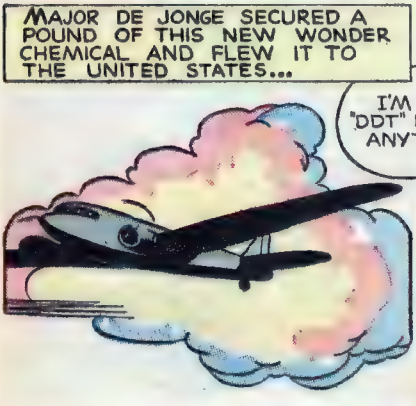
1874 – UNIVERSITY OF LEIPZIG, IN GERMANY...
OTHMAN WHAT HAVE YOU DECIDED TO DO FOR YOUR MASTER'S DEGREE THESIS?
I'VE NOT ONLY DECIDED WHAT TO DO-I'VE DONE IT! I HAVE IT RIGHT HERE!

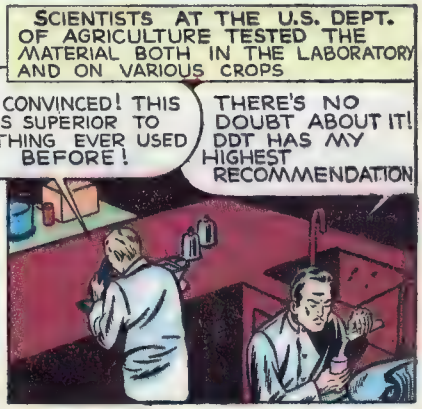

HUH? "THE INSECTICIDIAL PROPERTIES OF DICHLORO-DIPHENYL-TRICHLOROETHANE" WHAT THE DEUCE IS THAT?
JUST A COMBINATION OF CHEMICALS I'VE BEEN EXPERIMENTING WITH HANS!

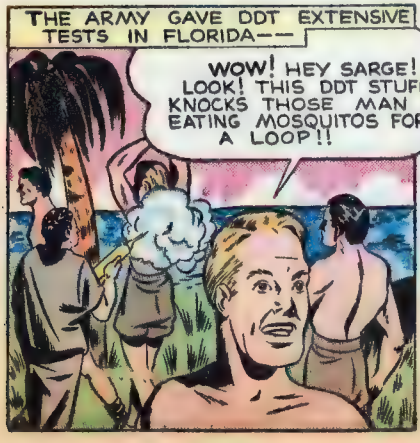
THAT AFTERNOON...
AH! HERR OTHMAN ZIEDLER YOU HAVE COMPLETED YOUR THESIS?
JA, MEIN PROFESSOR HERE IT IS ALL FINISHED!
I HAVE BEEN FOLLOWING YOUR EXPERIMENTS WITH THIS CHEMICAL WITH GREAT INTEREST, OTHMAN!.
THANK YOU SIR!
MAYBE SOMEDAY WHEN DICHLORO-DIPHENYL-TRICHLOROETHANE CAN BE PRODUCED IN LARGE QUANTITIES IT WILL BE OF GREAT SERVICE TO MANKIND!
BUT— AFTER OTHAMAN ZIEDLER'S THESIS WON HIM HIS DEGREE, HIS PAPER WAS FILED AWAY AND FORGOTTEN !!
THEN 65 YEARS LATER (1939), PAUL MULLER, A SWISS RESEARCH CHEMIST EMPLOYED BY THE J.R. GEIGY CHEMICAL COMPANY SOUGHT A SOLUTION TO A PERPLEXING PROBLEM—
THESE COLORADO POTATO BEETLES ARE DESTROYING CROPS ALL OVER SWITZERLAND!
I WONDER IF DICHLORO-DIPHENYL-TRICHLOROETHANE WOULD WORK? I REMEMBER THAT THESIS OF ZIEDLER'S WHICH I FOUND IN THE FILES AT LEIPZIG!! I'M GOING TO MANUFACTURE A BATCH AND TRY IT!

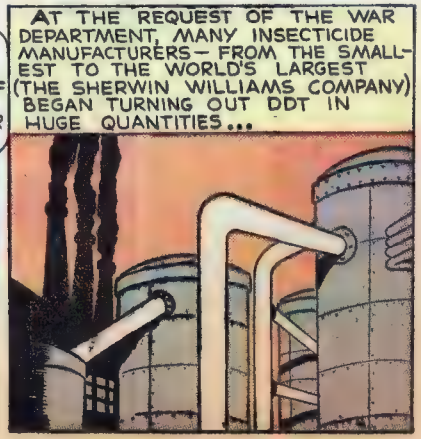

SOME TIME LATER...
THIS IS SENSATIONAL! EVEN SMALL PERCENTAGES OF THE CHEMICAL IN SOLUTION NOT ONLY KILLS THE BEETLES ALREADY ON THE PLANTS, BUT KILLS ANY INSECTS THAT MIGHT ALIGHT ON THEM SEVERAL DAYS AFTER SPRAYING!


AN ALERT U.S. ARMY MILITARY ATTACHE, MAJOR DE JONGE, WHO WAS STATIONED IN BERNE, SWITZERLAND, READ MULLER'S REPORT WITH GREAT INTEREST...
IF THIS NEW INSECTICIDE IS EVERYTHING MULLER SAYS IT IS, THE UNITED STATES COULD MAKE GOOD USE OF IT!

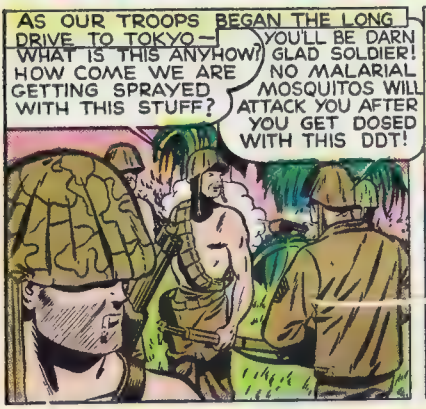

MAJOR DE JONGE SECURED A POUND OF THIS NEW WONDER CHEMICAL AND FLEW IT TO THE UNITED STATES...

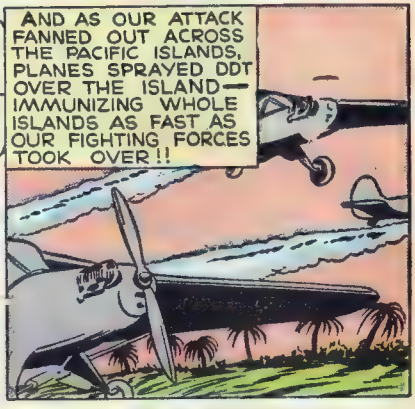

SCIENTISTS AT THE U.S. DEPT. OF AGRICULTURE TESTED THE MATERIAL BOTH IN THE LABORATORY AND ON VARIOUS CROPS
I'M CONVINCED! THIS "DDT" IS SUPERIOR TO ANYTHING EVER USED BEFORE!
THERE'S NO DOUBT ABOUT IT! DDT HAS MY HIGHEST RECOMMENDATION

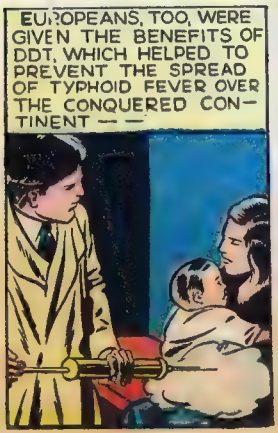

THE ARMY GAVE DDT EXTENSIVE TESTS IN FLORIDA--
WOW! HEY SARGE! LOOK! THIS DDT STUFF KNOCKS THOSE MAN EATING MOSQUITOS FOR A LOOP!!


AT THE REQUEST OF THE WAR DEPARTMENT, MANY INSECTICIDE MANUFACTURERS— FROM THE SMALLEST TO THE WORLD'S LARGEST (THE SHERWIN WILLIAMS COMPANY) BEGAN TURNING OUT DDT IN HUGE QUANTITIES...

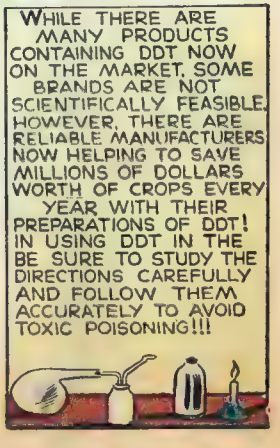
THEN— DECEMBER 7, 1941— THE JAPS BOMBED PEARL HARBOR AND THE UNITED STATES WENT TO WAR!!


AS OUR TROOPS BEGAN THE LONG DRIVE TO TOKYO— WHAT IS THIS ANYHOW? HOW COME WE ARE GETTING SPRAYED WITH THIS STUFF?
YOU'LL BE DARN GLAD SOLDIER! NO MALARIAL MOSQUITOS WILL ATTACK YOU AFTER YOU GET DOSED WITH THIS DDT!


AND AS OUR ATTACK FANNED OUT ACROSS THE PACIFIC ISLANDS, PLANES SPRAYED DDT OVER THE ISLAND— IMMUNIZING WHOLE ISLANDS AS FAST AS OUR FIGHTING FORCES TOOK OVER!!


EUROPEANS, TOO, WERE GIVEN THE BENEFITS OF DDT, WHICH HELPED TO PREVENT THE SPREAD OF TYPHOID FEVER OVER THE CONQUERED CONTINENT — —

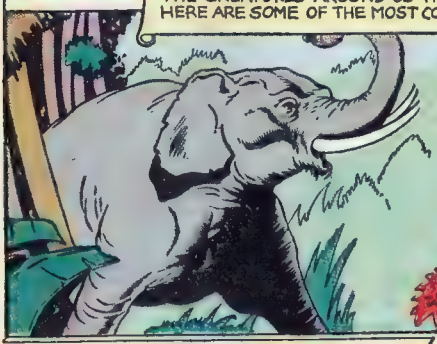
TODAY, DDT HAS MANY USES, FROM PROTECTING FOOD CROPS TO INCREASING MILK PRODUCTION AS MUCH AS 20 PER CENT BY KEEPING STABLE FLIES UNDER CONTROL!!


WHILE THERE ARE MANY PRODUCTS CONTAINING DDT NOW ON THE MARKET, SOME BRANDS ARE NOT SCIENTIFICALLY FEASIBLE. HOWEVER, THERE ARE RELIABLE MANUFACTURERS NOW HELPING TO SAVE MILLIONS OF DOLLARS WORTH OF CROPS EVERY YEAR WITH THEIR PREPARATIONS OF DDT! IN USING DDT IN THE BE SURE TO STUDY THE DIRECTIONS CAREFULLY AND FOLLOW THEM ACCURATELY TO AVOID TOXIC POISONING!!!

UN-NATURAL SCIENCE

SOME ZOOLOGICAL FALLACIES

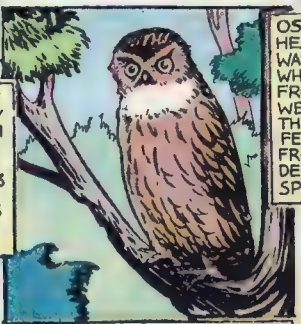
ALTHOUGH SCIENTISTS HAVE STUDIED BIRDS, FISH AND MAMMALS FOR HUNDREDS OF YEARS, MANY PEOPLE STILL BELIEVE MANY THINGS ABOUT THE CREATURES AROUND US THAT ARE NOT TRUE.. HERE ARE SOME OF THE MOST COMMON ERRORS .....



ELEPHANTS DO ***NOT*** LIVE LONGER THEN HUMAN BEINGS. .THEY LIVE FROM BETWEEN 60 TO 65 YEARS. .WHICH IS LESS THEN THE LIFE SPAN OF THE AVERAGE HUMAN! FURTHERMORE, THE STATEMENT THAT AN ELEPHANT NEVER FORGETS IS FALSE! ELEPHANTS HAVE POOR MEMORIES COMPARED WITH [illegible] ANIMALS AS HORSES, COWS, DOGS AND CATS. .

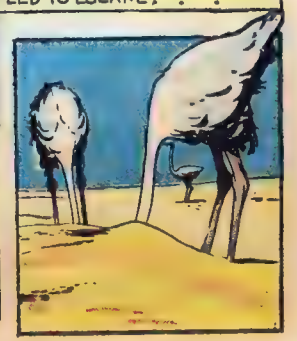
SNAKES CAN ***NOT*** BE CHARMED BY MUSIC. SNAKES HAVE NO SENSE OF HEARING WHATSOEVER. .THE HINDU FAKIR ACHIEVES THE EFFECT OF CHARMING A COBRA WITH MUSIC BY SWAYING HIS BODY WITH THE MUSIC. .THE COBRA ONLY IMITATES HIS MOVEMENTS. .

PORCUPINES DO ***NOT*** SHOOT THEIR QUILLS, BECAUSE THEY ARE POWERLESS TO DO SUCH A THING! WHEN A PORCUPINE COMES INTO CONTACT WITH AN ENEMY, THE TAIL QUILLS ARE EASILY DISLODGED AND MERELY IMBED THEMSELVES IN THE SKIN OR HIDE OF THE ENEMY.



OWLS ARE ***NOT*** BLIND IN THE DAYTIME! THEY SIMPLY HIDE DURING THE DAY SO THAT OTHER ANIMALS WILL NOT BE WARNED OF HIS PRESENCE. .IF THEY KNEW THE OWL WAS IN THE NEIGHBORHOOD, THE OTHER ANIMALS WHICH ARE THE OWLS' NATURAL PREY WOULD QUICKLY LEAVE THE REGION. .

OSTRICHES DO ***NOT*** BURY THEIR HEADS IN THE SAND! THIS MYTH WAS BEGUN YEARS AGO BY MEN WHO, OBSERVING THE OSTRICHES FROM A DISTANCE, ASSUMED THEY WERE DOING THIS. .IN REALITY, THE OSTRICHES WERE ONLY FEEDING. .INSTEAD OF HIDING FROM THEIR ENEMIES, OSTRICHES DEPEND ON THEIR TERRIFIC SPEED TO ESCAPE. . .



Mind Over

By Joseph

THE MIND, as we all know, is the brain or the consciousness or the intellect: in short, it is that which thinks, feels and wills; the mind controls the entire physical being of man and the so-called "lower orders" of animals

Matter, on the other hand, is something which makes up the substance of things or the material of which a thing is composed.

Now, just as a definition of the mind requires a more complex definition than that of matter, so is the mind more complex to understand than is most matter. The reason for this, we have been told by scientists many times, is that the mind (or the brain or the intellect) is probably the most complex thing upon this earth.

But, we might ask at this point, if the mind of a snake or a horse or a dog is the most complex thing upon earth? The answer, without question, is that this is not so. The most complex thing upon this earth is a mind, it is true. But that mind is the mind of man.

Many debates have been staged around this subject, but there seems to be no doubt but that this is true, if for no other reason than that man is the dominate living creature in this world of ours and his dominance is due almost entirely to his mind.

For example, an unarmed man battling a mountain lion is almost certain to be conquered by the beast. The same holds true of many other animals and even insects and fish. But since man's mind is so highly developed—at least in relation to the lower animals—man is able to devise means and methods of vanquishing his animal enemies.

If a man sets out to conquer a shark he equips himself with man-made reels and rods and other accoutrements and, unless the shark or other fish has a mighty lucky time of it, that fisherman is going to win the ensuing battle.

The same, almost-inevitable result is almost certain to turn up when man sets out to tame an elephant or shoot a grizzly bear or trap a small but speedy jack rabbit.

WHEN we consider that this is the case, then we must also come to the conclusion that of all the minds in our world today, the mind of man is definitely more complex, more clever and more imaginative than any other living creature.

Some would have us believe that—since trees are the oldest and largest things upon the face of the earth—then, it follows, that trees are destined to dominate man, in some distant day. The fact that escapes this school of thought is that trees have already had their days as rulers. Man has conquered them. If he wants to destroy these largest and oldest living things, he has only to take a crew of men to a forest and lay it waste within a very short time. Besides, the mind of man has never been able to find a mind in a tree. And without that valuable asset, it is inconceivable that trees will ever be anything more than trees.

On the other hand, there are some who hold that the future rulers of the earth will be the ants. Ants have brains. Ants have a complex society. Ants have everything except size.

This school of thought has a lot in its case, but the mind of man has long ago proved conclusively that for a species such as the ant to attain world dominance, they must have more than a mind: they must have physical characteristics as well. In other words, the ants will have to grow up considerably before they can seriously challenge mankind for world dominance.

Is it possible that such a thing as that will occur? Certainly it is possible. But

Matter

Blair

when one considers the millions of years it took for man himself to reach his present place in the world about us, how long will it take for ants to achieve the same goal?

We know, of course, that ants have a high degree of civilization, as was pointed out in the story, "Ant Civilization," which appeared in the second issue of SCIENCE COMICS. But before their wonderful society can hope to replace ours, there is no question but that millions—perhaps billions — of years will have elapsed.

Well, then, how about the apes or the monkeys? It appears that they lost out on their opportunity along this line when man himself progressed from an ape-like creature to his present status.

TO REALIZE the great importance of this thing we call "mind," suppose we reflect for a moment on the mighty days of the mighty dinosaur. By reconstructing his life and times from the facts we have discovered from fossils, etc., we are almost positively safe in saying that the dinosaurs died out because — although they certainly had the size which the ants lack — they did not have the mental equipment to use that size to advantage. In fact, there very size alone may have been their undoing.

So huge were these primitive beasts that one nerve or brain center in their heads was not sufficient. The dinosaurs also had a brain center located in their tails to help control their bodily actions and functions. Here we find the reverse of ant life if ever there was one.

Conceding, now, that man's mind together with his size is responsible for his rule of the world's creatures as well as his control over the world's matter, let us examine why this is so.

Well, to frame a perfectly simple example, all we have to do is imagine what would happen to, say, the apes if they were suddenly forced to migrate from their tropical climes to the arctic regions.

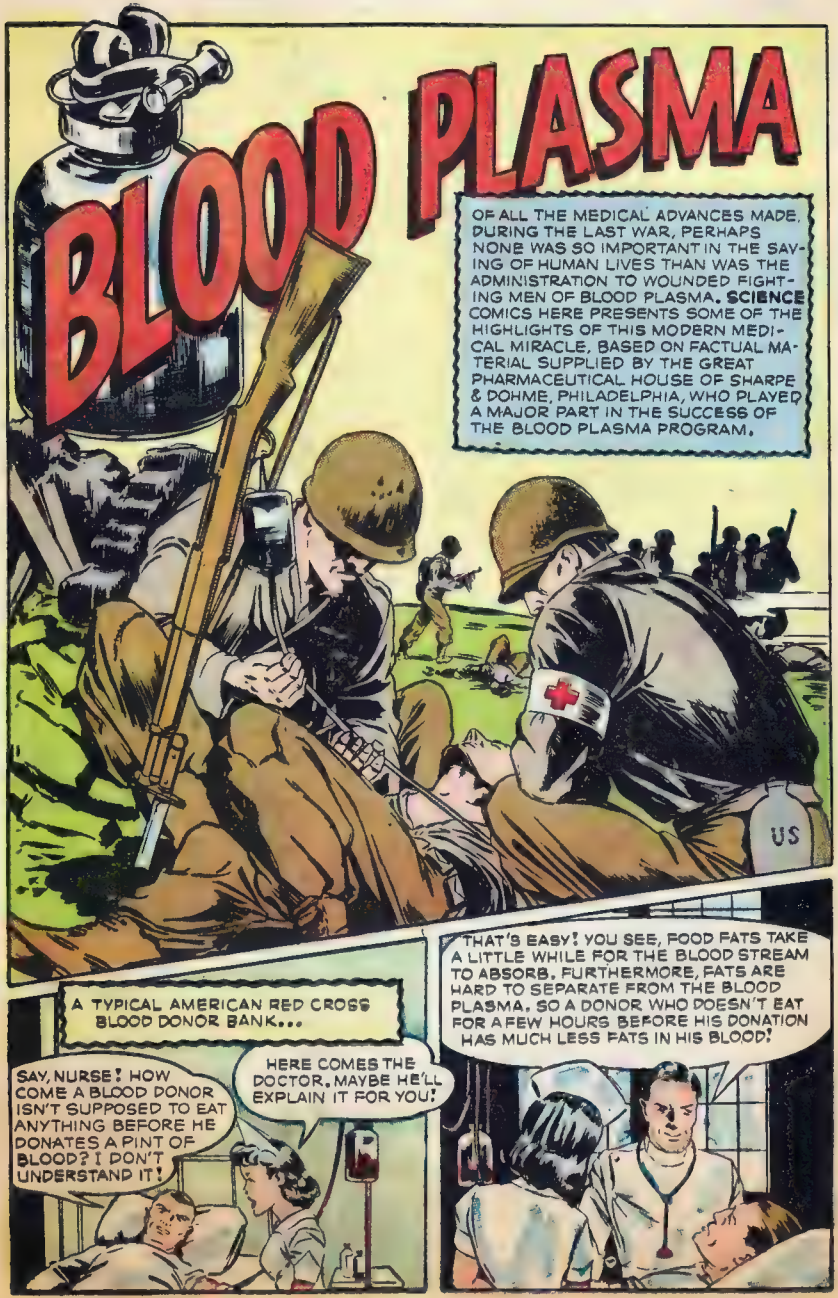
Unquestionably, they would all die out practically overnight, because their bodies would not stand the terrific and sudden change from their natural environment to such a frigid region. But perhaps most important of all, their minds could not conceive of a method of overcoming this sudden change.

On the other hand, if a man living in Florida or some other tropical or semi-tropical region were forced to journey to the arctic regions, he would endure very well because his mind would overcome the new conditions his body was forced to meet.

First of all, he would equip himself with adequate clothing and fuel and supplies and weapons with which to defend himself and to kill his food. Furthermore, his mind would permit him to build warm shelters to protect himself further from the elements. This, we know, the other animals would not be able to do under any circumstances.

There are hundreds of other examples we can all think of to support this proposition, but that one alone should be sufficient to convince us that man and his mind—or better, that man because of his mind—is undisputed ruler over all matter in the world.

Only one sour note, from the human point of view, remains in our picture. Can man, with his wonderful mind, refrain from destroying his whole race with atomic bombs and warfare? Or will he wipe out the whole human race in a sort of world-wide suicide? If that happens, then the ants or the bears or the apes or some other lower form of life will certainly rise to world leadership.


BLOOD PLASMA
OF ALL THE MEDICAL ADVANCES MADE, DURING THE LAST WAR, PERHAPS NONE WAS SO IMPORTANT IN THE SAVING OF HUMAN LIVES THAN WAS THE ADMINISTRATION TO WOUNDED FIGHTING MEN OF BLOOD PLASMA. SCIENCE COMICS HERE PRESENTS SOME OF THE HIGHLIGHTS OF THIS MODERN MEDICAL MIRACLE, BASED ON FACTUAL MATERIAL SUPPLIED BY THE GREAT PHARMACEUTICAL HOUSE OF SHARPE & DOHME, PHILADELPHIA, WHO PLAYED A MAJOR PART IN THE SUCCESS OF THE BLOOD PLASMA PROGRAM.
US
A TYPICAL AMERICAN RED CROSS BLOOD DONOR BANK...
SAY, NURSE! HOW COME A BLOOD DONOR ISN'T SUPPOSED TO EAT ANYTHING BEFORE HE DONATES A PINT OF BLOOD? I DON'T UNDERSTAND IT!
HERE COMES THE DOCTOR. MAYBE HE'LL EXPLAIN IT FOR YOU!
THAT'S EASY! YOU SEE, FOOD FATS TAKE A LITTLE WHILE FOR THE BLOOD STREAM TO ABSORB. FURTHERMORE, FATS ARE HARD TO SEPARATE FROM THE BLOOD PLASMA. SO A DONOR WHO DOESN'T EAT FOR A FEW HOURS BEFORE HIS DONATION HAS MUCH LESS FATS IN HIS BLOOD!

SOMETHING ELSE I'D LIKE TO KNOW! DOESN'T THE PROCESSING OF PLASMA FROM HUMAN BLOOD DESTROY THE RED CORPUSCLES IN THE BLOOD?
THAT'S CORRECT! IT ALSO DESTROYS THE WHITE CORPUSCLES!
BUT I THOUGHT THE WHITE AND RED CORPUSCLES DID THE MOST GOOD IN TRANSFUSIONS!
WE USED TO BELIEVE THAT WAS TRUE, BUT RECENT RESEARCH HAS PROVED THAT THIS ISN'T ALWAYS THE CASE!
WE'VE FOUND THAT THE MAJOR ADVANTAGE OF GIVING TRANSFUSIONS IS THAT PLASMA - ALTHOUGH MINUS THE RED CORPUSCLES - STILL CONTAINS PLASMA PROTEINS... THAT'S WHAT DOES THE PATIENT THE MOST GOOD!
YOUR ORANGE JUICE, SIR!
THANKS, NURSE. BUT DOCTOR - DO YOU MEAN TO TELL ME THERE'S NO LONGER ANY NEED FOR GIVING PATIENTS TRANSFUSIONS OF REAL HUMAN BLOOD RATHER THAN BLOOD PLASMA?
NO, THAT ISN'T TRUE, EITHER! IN SOME CASES, A PATIENT NEEDS THE ERYTHROCYTES OR RED CORPUSCLES. BUT THE MAIN ADVANTAGES OF PLASMA ARE THAT IT DOESN'T HAVE TO BE KEPT UNDER REFRIGERATION AND THE PATIENT DOESN'T HAVE TO HAVE HIS BLOOD TYPED BEFORE TRANSFUSIONS!
WELL, THAT ANSWERS MOST OF MY QUESTIONS! IT'S PRETTY WONDERFUL!
IT CERTAINLY IS! AND A GOOD MANY THOUSAND G.I'S LIVES WERE SAVED BECAUSE OF IT!
SILENCE
ELEVATOR
WARD A

THE PINT BOTTLE OF BLOOD FROM THE DONOR IS NOW TAKEN IMMEDIATELY TO A LARGE REFRIGERATED CHEST...

THE BOTTLE IS SLIPPED INTO A SMALL, STERILIZED BAG AND PLACED INTO THE REFRIGERATOR...

THE BLOOD DONATIONS ARE SHIPPED DAILY IN THEIR REFRIGERATORS TO THE NEAREST LABORATORY OF A PROCESSOR WHERE THEY ARE REMOVED AND PLACED IN COLD STORAGE VAULTS... TO BE PROCESSED WITHIN THE NEXT 12 HOURS!

BLOOD SPECIMENS FROM EACH DONOR ARE TESTED BEFORE PROCESSING...

HMM! THIS BLOOD SAMPLE IS DISEASED WE'LL HAVE TO DISCARD THAT PINT AND NOTIFY THE PHYSICIAN OF THE MAN WHO DONATED IT SO HE CAN BE TREATED!

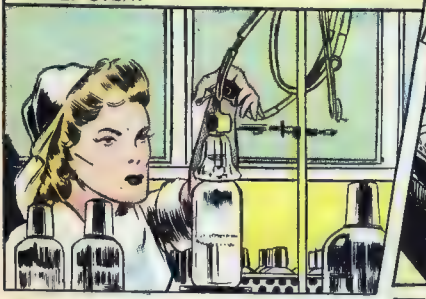
BLOOD DONATIONS IN THEIR ORIGINAL CONTAINERS ARE THEN PLACED INSIDE CENTRIFUGE BUCKETS AND WEIGHT IS ADDED SO THAT EACH BUCKET WEIGHS EXACTLY THE SAME BEFORE BEING PLACED IN THE CENTRIFUGAL MACHINE

PLACED SIDE-BY-SIDE IN A CENTRIFUGAL MACHINE, THE BLOOD IS WHIRLED ROUND AND ROUND WITH GREAT FORCE, SEPARATING IT INTO ITS COMPONENT PARTS, MUCH AS A DAIRY CREAM SEPARATOR WHIRLS CREAM TO SEPARATE IT INTO VARIOUS DEGREES OF CONSISTENCY.

BOTTLES OF CENTRIFUGED BLOOD ARE NOW SIPHONED INTO A LARGE "POOLING" BOTTLE BY A TECHNICIAN WORKING IN STERILE GARMENTS, UNDER ULTRA-VIOLET LIGHTS. "POOLED" OR MIXED PLASMA CAN SAFELY BE GIVEN TO PERSONS OF ANY BLOOD TYPE.

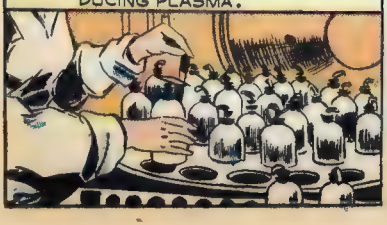
SAMPLES OF ALL "POOLED" PLASMA ARE CHECKED ONCE MORE... THIS TIME TO MAKE CERTAIN THERE ARE NO DISEASE-CARRYING BACTERIA PRESENT

AFTER RIGID TESTS FOR BACTERIA, THE APPROVED "POOLED" PLASMA IS PLACED IN STERILE BOTTLES - THE SAME CONTAINERS THAT WERE SHIPPED TO OUR FIGHTING MEN THE WORLD OVER.



THE SEALED BOTTLES ARE NOW ROTATED IN A BATH OF DRY ICE AND THE PLASMA IS FROZEN AROUND THE INSIDE OF THE BOTTLES. THIS PROCESS EXPOSES A LARGE PART OF THE PLASMA IN THE BOTTLES TO THE NEXT STOP

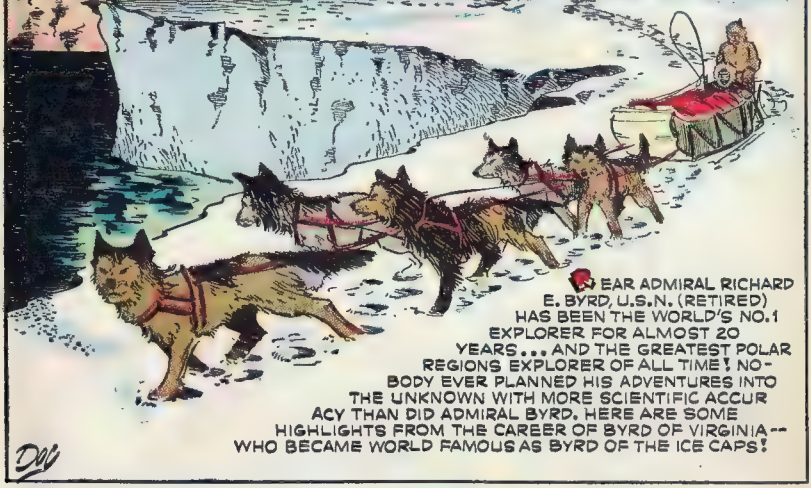
THE BOTTLES OF FROZEN PLAZMA ARE PLACED IN AN EVAPORATION MACHINE WHERE MOISTURE IS DRAWN FROM THE FROZEN MATERIAL BY A HUGE VACUUM, LEAVING THOROUGHLY DRY PLASMA IN THE BOTTLES. THIS IS AN IMPORTANT STEP IN THE "LYOPHILE" TECHNIC FOR PRODUCING PLASMA.



SINCE THE DRIED BLOOD PLASMA WILL KEEP ALMOST INDEFINITELY UNDER ALL KINDS OF CLIMATIC CONDITION, IT WAS FLOWN TO THE FRONTS WHERE G.I. JOE NEEDED IT - WHETHER ALASKA, THE SOUTH PACIFIC OR EUROPE. MEDICAL RESEARCH AND DEVELOPMENT LIKE THIS HAS MADE AND IS MAKING AMERICA THE MOST PROGRESSIVE MEDICAL-AND SCIENTIFIC-NATION IN THE ENTIRE WORLD!

ADMIRAL BYRD

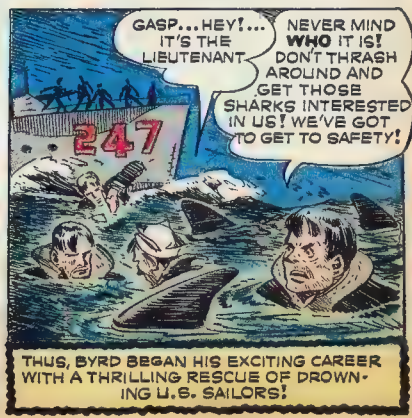
POLAR EXPLORER

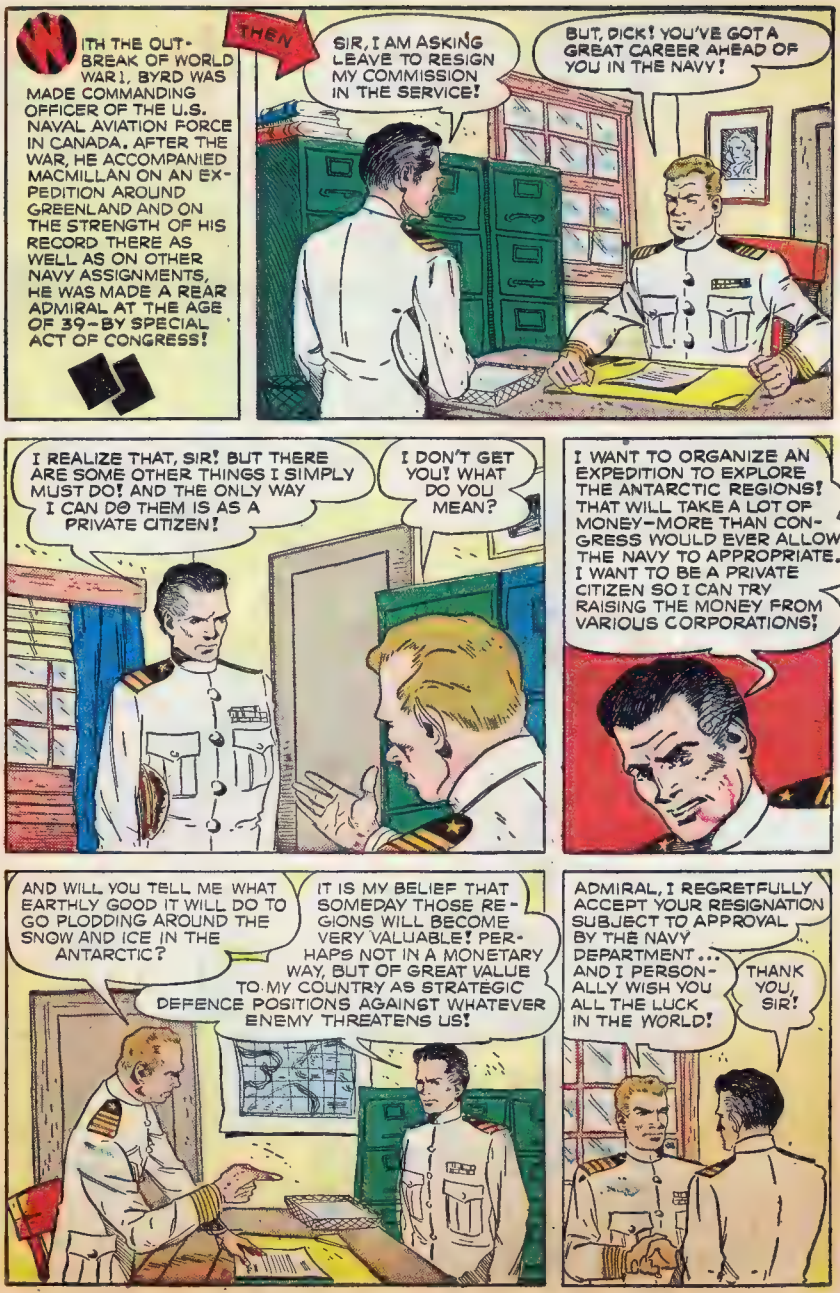


REAR ADMIRAL RICHARD E. BYRD, U.S.N. (RETIRED) HAS BEEN THE WORLD'S NO.1 EXPLORER FOR ALMOST 20 YEARS... AND THE GREATEST POLAR REGIONS EXPLORER OF ALL TIME! NO-BODY EVER PLANNED HIS ADVENTURES INTO THE UNKNOWN WITH MORE SCIENTIFIC ACCUR ACY THAN DID ADMIRAL BYRD. HERE ARE SOME HIGHLIGHTS FROM THE CAREER OF BYRD OF VIRGINIA -- WHO BECAME WORLD FAMOUS AS BYRD OF THE ICE CAPS!

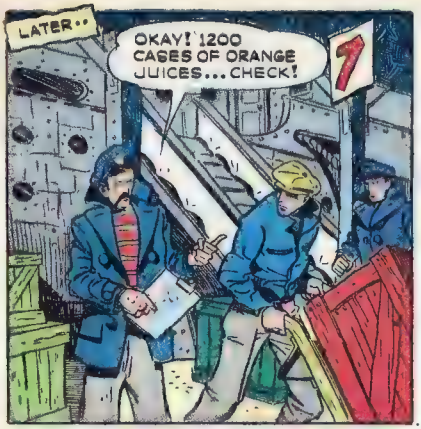
DOC

TWO YEARS AFTER HE WAS GRADUATED FROM ANNAPOLIS, DICK BYRD WAS IN THE CARRIBEAN ON NAVY DUTY...
247
NO NAVY MEN OF OUR OURS ARE GOING TO BE SHARK-BAIT!
SHARKS !
HELP! I CAN'T SWIM


GASP... HEY!... IT'S THE LIEUTENANT
NEVER MIND WHO IT IS! DON'T THRASH AROUND AND GET THOSE SHARKS INTERESTED IN US! WE'VE GOT TO GET TO SAFETY!
247
THUS, BYRD BEGAN HIS EXCITING CAREER WITH A THRILLING RESCUE OF DROWN-ING U.S. SAILORS!


WITH THE OUTBREAK OF WORLD WAR I, BYRD WAS MADE COMMANDING OFFICER OF THE U.S. NAVAL AVIATION FORCE IN CANADA. AFTER THE WAR, HE ACCOMPANIED MACMILLAN ON AN EXPEDITION AROUND GREENLAND AND ON THE STRENGTH OF HIS RECORD THERE AS WELL AS ON OTHER NAVY ASSIGNMENTS, HE WAS MADE A REAR ADMIRAL AT THE AGE OF 39—BY SPECIAL ACT OF CONGRESS!
THEN
SIR, I AM ASKING LEAVE TO RESIGN MY COMMISSION IN THE SERVICE!
BUT, DICK! YOU'VE GOT A GREAT CAREER AHEAD OF YOU IN THE NAVY!
I REALIZE THAT, SIR! BUT THERE ARE SOME OTHER THINGS I SIMPLY MUST DO! AND THE ONLY WAY I CAN DO THEM IS AS A PRIVATE CITIZEN!
I DON'T GET YOU! WHAT DO YOU MEAN?
I WANT TO ORGANIZE AN EXPEDITION TO EXPLORE THE ANTARCTIC REGIONS! THAT WILL TAKE A LOT OF MONEY—MORE THAN CONGRESS WOULD EVER ALLOW THE NAVY TO APPROPRIATE. I WANT TO BE A PRIVATE CITIZEN SO I CAN TRY RAISING THE MONEY FROM VARIOUS CORPORATIONS!
AND WILL YOU TELL ME WHAT EARTHLY GOOD IT WILL DO TO GO PLODDING AROUND THE SNOW AND ICE IN THE ANTARCTIC?
IT IS MY BELIEF THAT SOMEDAY THOSE REGIONS WILL BECOME VERY VALUABLE! PERHAPS NOT IN A MONETARY WAY, BUT OF GREAT VALUE TO MY COUNTRY AS STRATEGIC DEFENCE POSITIONS AGAINST WHATEVER ENEMY THREATENS US!
ADMIRAL, I REGRETFULLY ACCEPT YOUR RESIGNATION SUBJECT TO APPROVAL BY THE NAVY DEPARTMENT... AND I PERSONALLY WISH YOU ALL THE LUCK IN THE WORLD!
THANK YOU, SIR!

ALMOST IMMEDIATELY, THE NAVY MAN-OF-ACTION BEGAN A NEW CAREER ...
ADMIRAL, I'M INTERESTED IN YOUR PLANS HOW MUCH DO YOU WANT ME TO CONTRIBUTE? PERHAPS $10,000?
MR. BOB, I NEED $108,000
A HUNDRED AND EIGHT THOUSAND DOLLARS!!! THAT'S A YOUNG FORTUNE!
BUT THIS IS A YOUNG EXPEDITION! WE NEED A SHIP AND A PLANE AND FOOD AND CLOTHING AND SUPPLIES! AND THAT'S ONLY THE BEGINNING!
ADMIRAL, I'M A BUSINESS MAN AND I THINK LIKE ONE! WHY DON'T YOU CONSIDER GETTING FOOD MANUFACTURERS TO DONATE THEIR PRODUCTS TO YOU? THEY SHOULD DO IT FOR THE PUBLICITY THEIR PRODUCTS WILL GET!
AN EXCELLENT IDEA, MR. BOB! BUT I'VE ALREADY DONE JUST THAT! HERE ARE THE CONTRACTS!
WELL, THEN - YOUR PROBLEMS ARE SETTLED!
I STILL NEED $108,000, MR. BOB! BUT IF DON'T YOU THINK...
SIT DOWN, ADMIRAL! I'M AFRAID YOU'VE TALKED ME INTO IT!
ADMIRAL BYRD SUBSEQUENTLY RAISED BETWEEN $800,000 AND $900,000 IN CASH FROM VARIOUS SOURCES. IN ADDITION, THE FOOD, FUEL, CLOTHING AND OTHER MATERIAL SUPPLIED FREE OF CHARGE BY MANUFACTURERS AMOUNTED TO ABOUT $600,000! THUS THE EX-NAVY MAN BECAME ONE OF THE MOST SKILLFUL PROMOTORS IN THE COUNTRY, HAVING RAISED ABOUT A MILLION-AND-A-HALF DOLLARS IN MONEY AND MATERIALS FOR THIS ONE EXPEDITION ALONE!

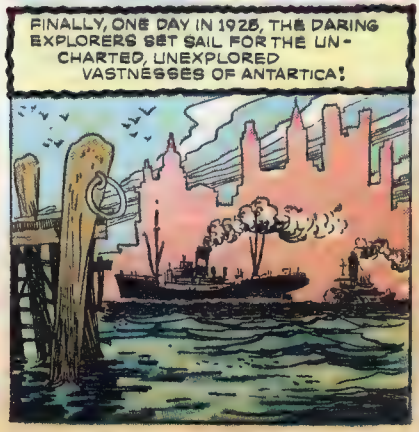

LATER..
OKAY! 1200 CASES OF ORANGE JUICES... CHECK!
7

HOW'S IT GOING, FELLOW?
ALLRIGHT, ADMIRAL! LET'S SEE, NOW... WHAT'S THAT?
STRAIT JACKETS

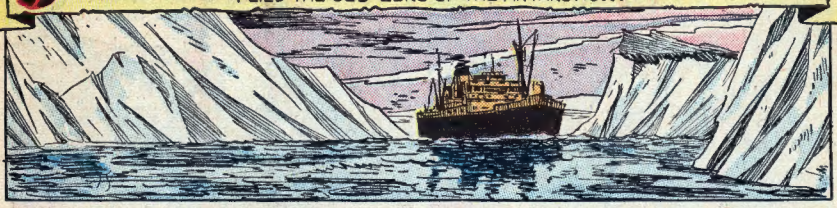
ONE DOZEN STRAIT JACKETS HERE!
WHAT!!! STRAIT JACKETS! HEY, WAIT A MINUTE!

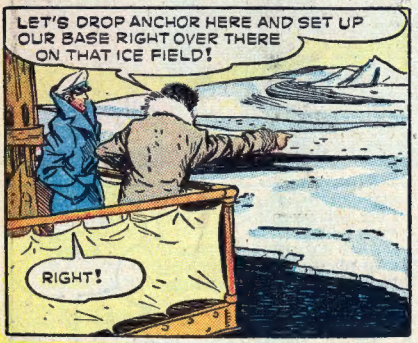
LISTEN, ADMIRAL, WHEN I VOLUNTEERED FOR THIS EXPEDITION, I DIDN'T VOLUNTEER FOR THE BOOBY HATCH! DO YOU THINK A DOZEN OF US ARE GOING TO GO CRAZY ON THIS TRIP!
NOTHING OF THE SORT!

I'VE GOT PLANS FOR THOSE STRAIT JACKETS, MY FRIEND! WE'RE GOING TO CUT OFF THE ENDS OF THE SLEEVES AND USE THEM FOR WIND-BREAKERS! THE MATERIAL THEY MAKE THOSE JACKETS FROM IS VERY GOOD STUFF!
WHEW! NOW I FEEL A LITTLE BETTER!

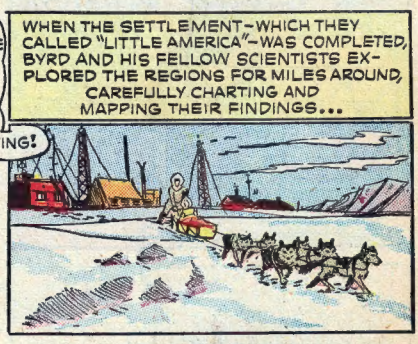

FINALLY, ONE DAY IN 1928, THE DARING EXPLORERS SET SAIL FOR THE UN-CHARTED, UNEXPLORED VASTNESSES OF ANTARTICA!

SEVERAL MONTHS LATER, THE SHIP WITH HER CREW OF ADVENTUROUS SCIENTISTS PLIED THE SUB-ZERO OF THE ANTARCTIC...



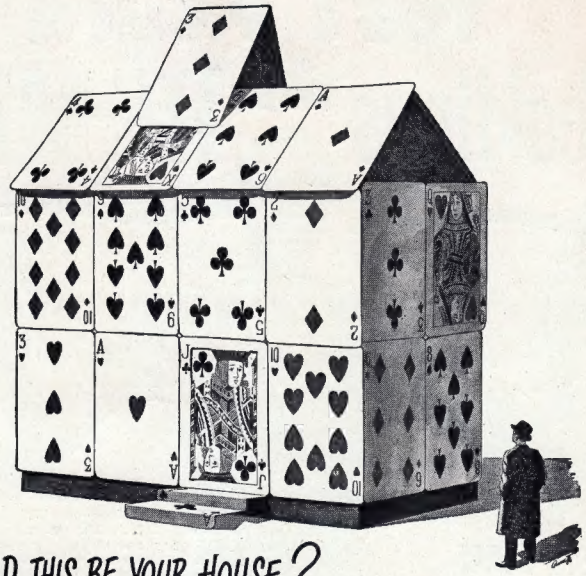


ADMIRAL, YOU HAD A GOOD IDEA THERE WHEN YOU ORDERED PRE-FABRICATED HOUSES FOR OUR EXPEDITION! WE'LL BE SNUG AS A BUG IN A RUG!
WELL, BILL, SOMEDAY THOSE PRE-FABRICATED HOUSES WILL BE COMMONPLACE... NOT ONLY FOR EMERGENCY SITUATIONS LIKE THIS, BUT FOR EVERY-DAY LIVING!


WHEN THE SETTLEMENT-WHICH THEY CALLED "LITTLE AMERICA"-WAS COMPLETED, BYRD AND HIS FELLOW SCIENTISTS EXPLORED THE REGIONS FOR MILES AROUND, CAREFULLY CHARTING AND MAPPING THEIR FINDINGS...

ONE DAY IN 1929, BYRD TOOK OFF IN HIS PLANE AND FLEW ACROSS THE SOUTH POLE, THUS BECOMING THE FIRST MAN EVER TO PERFORM THE FEAT. THIS WAS AN ADDED HONOR, FOR SEVERAL YEARS BEFORE THAT, HE HAD BECOME THE FIRST MAN TO FLY ACROSS THE NORTH POLE!

DURING HIS TWO YEAR STAY IN THE ANTARCTIC ON EXPEDITION NO. 1, BYRD MADE MANY IMPORTANT DISCOVERIES, AMONG WHICH WAS THE DISCLOSURE THAT THE ANTARCTIC REGIONS CONTAIN GREAT DEPOSITS OF COAL AND MINERALS. ADMIRAL BYRD MADE A SECOND TRIP TO "LITTLE AMERICA" SEVERAL YEARS LATER, AND WAS PLANNING A THIRD WHEN THE LATE WAR INTERFERED. BUT THE ADMIRAL OF THE ICE FLOES IS NOT FINISHED YET, AND IS ALREADY LAYING PLANS FOR A RETURN TO ADVENTURE LAND!



COULD THIS BE YOUR HOUSE?

Now that the war's over and a lot more civilian goods are on the market, it's a big temptation to spend just about all you make, and not put anything aside.

But to fall for that temptation is plenty dangerous. It's like trying to live in the house above —a house that might come tumbling down about your ears at the first little blow of hard luck.

Right now the best possible way to keep your finances in sound shape is to save regularly—*by buying U. S. Savings Bonds through the Payroll Plan.*

These Bonds are exactly like War Bonds. Millions of Americans have found them the safest, easiest, surest way to save. The U.S.A. protects every dollar you invest—and Uncle Sam gives you his personal guarantee that, in just ten years, you'll get *four dollars back for every three you put in!*

If you stick with the Payroll Savings Plan, you'll not only guard against rainy days, you'll *also* be storing up money for the really important things—like sending your children to college, traveling, or buying a home.

So—any way you look at it—isn't it smart to buy every single U. S. Bond you can possibly afford!

Stick with the Payroll Savings Plan!

SAVE THE EASY WAY... BUY YOUR BONDS THROUGH PAYROLL SAVINGS

SCIENCE COMICS

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and Advertising Council

Yes! I Turn Weaklings *into* HE-MEN!

Let Me Make YOU a NEW MAN

—In just 15 Minutes a Day!

YES, Sir, *that's my job!* I *"REBUILD"* skinny, run-down weaklings—fellows so embarrassed by their second-rate physical condition that they always hang back, let others walk off with the best jobs, the prettiest girls, the most fun and popularity. I turn weaklings like these into HE-MEN—REAL SPECIMENS OF HANDSOME, MUSCULAR MANHOOD—overflowing with pep, power, vitality! I'll PROVE that, in only 15 minutes a day, I can make YOU a NEW MAN too!

I'LL PROVE What I Say

I know what it's like to have a body others laugh at. I myself was once a 97-pound weakling—timid, ill-at-ease, ashamed to strip for sports or a swim.

Then I discovered *"Dynamic Tension."* It changed me from a scrawny "string-bean" into the winner of the title, "THE WORLD'S MOST PERFECTLY DEVELOPED MAN." Since then my *"Dynamic Tension"* has transformed thousands of other weak, no-muscle men into real Atlas Champions!

What I'll Do For YOU!

Where do YOU want solid, tough LIVE MUSCLE? Are you fat and flabby? Or skinny and gawky? Are you short-winded, sluggish, always tired? I'll give you a sledge-hammer fist and mighty forearm. Add inches to your biceps. Put a coat of muscle straight across your stomach. Change those legs that are "always tired" into mighty, vigorous columns of speed and stamina. You'll begin to know what it feels like to really LIVE!

SEND FOR FREE BOOK

Mail coupon right now. I'll send you a FREE COPY of my famous illustrated book, "Everlasting Health and Strength." In it I talk to you in straight-from-the-shoulder language—show you actual photographs of myself and other fellows who became NEW MEN, my way. You'll read the story of *"Dynamic Tension"*—what it has done for others, what I'm ready to PROVE in only 15 minutes a day, it can do for YOU! Send for this book *today!* AT ONCE! Address me personally: CHARLES ATLAS, Dept. 255G, 115 East 23rd St., New York 10, N. Y.

CHARLES ATLAS, Dept. 255G
115 East 23rd Street, New York 10, N. Y.

I want the proof that your system of *"Dynamic Tension"* will help make a New Man of me—give me a healthy, husky body and big muscular development. Send me your free book, "Everlasting Health and Strength."

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